

Annexure Z -Item details

Tenders are invited from prospective manufacturers for supply of Local Start Stop Push Button Station for various projects with technical specification TEP:NTPC:SSPB:008:REV 01 &TECI:SSPB:010: REV 00/Dt:19.11.2007.

Enq.Sl.no	Product	Qty	Drawing No.	Specifiaction	Delivery Reqd.
01	Local Start Stop Push Button Station of NTPC Specification	1000	2-00-114-28289/REV 03	TEP:NTPC:SSPB:008:REV 01	200 nos/month
02	Local Start Stop Push Button Station of Non-NTPC Specification	2000	2-00-114-28289/REV 03	TECI:SSPB:010: REV 00/Dt:19.11.2007, CKL:E:809/Dt:18.07.2003	300 nos/month

1. Pointwise specific confirmation to BHEL SPECIFICATION to be given in the Techno-Commercial Bid without fail; otherwise offer may not be considered.

2. In case of supplies from any new foreign suppliers, who are not in BHEL Product Material Directory, material inspection shall be carried out by Third Party Inspection Agency like Lloyds or SGS or BVQI prior to shipment at Supplier's work and total inspection charges shall be borne by the supplier only. (Quoted price shall be inclusive of TP inspection charges). For indigenous suppliers, first inspection will be carried out by BHEL only and subsequent inspections will be by BHEL/BHEL approved Third Party Inspection Agencies.

3. Offer to be submitted through Enterprise Procurement System (EPS) only .In case of direct hard copy offers, the same will be returned to the supplier without opening.

4. Pre Qualification Criteria - (1) The supply shall be as per our Technical Specn: TEP:NTPC:SSPB:008:REV 01 &TECI:SSPB:010: REV 00/Dt:19.11.2007,drawing 2-00-114-28289/REV 03 and quality requirement as per CKL:E:809/Dt:18.07.2003, deviation if any, the “deviation summary “ shall be submitted for our technical evaluation.

(2) The new supplier/First time supplier to BHEL Ranipet shall fill all the details as called in the Supplier’s Registration Form through online as stated above.

5.BHEL reserves the right to verify the information provided by vendor. In case the information provided by vendor is found to be false / incorrect, the offer shall be rejected.

Annexure A

(Enquiry ref: 4270172E)

Framework Agreement Terms & Conditions

1. Rates shall be firm and fixed till completion of supplies.
2. The framework agreement shall be valid for one year from the date of finalization of LOI/PO.
3. Separate addendum will be issued against firm requirement as and when requirement is there.
4. Framework agreement quantity is tentative. No minimum quantity is guaranteed.
5. Applicable duties and taxes shall be quoted extra separately.
6. Quantity split will be approximately 70:30 by value of tender and will be done by counter-offering the L1 price to the next higher bidder and entering into framework agreement who accepts the L1 price except H1. Ordering will be based on project requirements. Quantity split is applicable for Enquiry Sl.no.02 only.

Annexure-B

GENERAL TERMS AND CONDITIONS OF REVERSE AUCTION

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 (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.

2a. BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

2b. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit “online sealed bid” in the Reverse Auction. Non-submission of “online sealed bid” by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.

3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.

4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.

5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.

6. Bidders have to fax the Compliance form before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.

7. In line with the NIT terms, 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 bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.

8. Reverse auction will be conducted on scheduled date & time.

9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.

10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, as provided on case-to-case basis to Service provider within two working days of Auction without fail.

11. Bidders shall be required to read the “Terms and Conditions” section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the “Business Rules of Reverse Auction”, which will be communicated before the Reverse Auction.

12. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.

13. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.

14. In case of multiple H1 bidders, additional 15 minutes bidding time will be given to break the tie. Bidders will see on their screen their rank and running lowest bid during bidding as well as at the close of auction.

15. The envelope sealed price bid of successful L1 bidder in RA, will also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price).

16. Punitive action in terms of warning letter/ banning of business dealings with the bidder who is found to quote higher in online sealed bids as compared to envelope sealed price bid will be initiated.

Senior Manager / Purchase

ANNEXURE – ‘A1’ to ENQ
COMMERCIAL TERMS AND CONDITIONS
(To be filled in full and to be submitted along with offer)

Any deviation to the BHEL standard clauses, will be loaded with basic price

SL. NO.	DESCRIPTION	BHEL'S REQUIREMENT	SUPPLIER'S CONFIRMATIONS
01.	PRICE	Firm till completion of order.	
02.	DELIVERY TERMS	F.O.R. DESTINATION (Destination: BHEL Stores, Ranipet)	
03.	PACKING & FORWARDING	Included. (if extra indicate clearly in %)	
04.	FREIGHT & INSURANCE	Included. (if extra, pls. indicate freight & insurance charges separately in %)	
05.	EXCISE DUTY in %	To be indicated by supplier. (MODVAT copy to be provided along with supply)	
06.	SALES TAX in %	To be indicated by supplier. (Concessional form C / XVII will be given)	
07.	OCTROI	If any, to supplier's account only.	
08.	PAYMENT	1) 100% within 45 days after receipt & acceptance of materials at our end for MSME suppliers and 2) 100% within 90 days after receipt & acceptance of materials at our end for Non-MSME suppliers. [SPECIAL NOTE: ANY DEVIATION TO THIS CLAUSE SHALL BE LOADED WITH QUOTED BASIC WHILE EVALUATING THE OFFER].	
09.	DELIVERY PERIOD	As per enquiry.	
10.	L.D. CLAUSE: As indicated in Enquiry (As per IMPORTANT NOTE) @ 0.5% per week, max of 10% for the delayed delivery. [SPECIAL NOTE: ANY DEVIATION TO THIS CLAUSE SHALL BE LOADED WITH QUOTED BASIC PRICE WHILE EVALUATING THE OFFER].		
11.	OFFER VALIDITY	Minimum 90 days from the date of tender opening.	
12.	INSPECTION BEFORE DESPATCH	Will be done at supplier's works before dispatch by BHEL/BHEL Approved agency.	
13.	TEST CERTIFICATE	Required.	
14.	Risk Purchase clause : Your confirmation to our standard risk purchase clause that alternatively 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 as aforesaid or if the same were not available, the best and the nearest available substitute therefor. The supplier shall be liable for any loss which the purchaser may sustain by reason of such risk purchases in addition to penalty at the rate mentioned in clause 10 above.		
15.	BHEL Standard Guarantee Clause: Your confirmation to our standard Guarantee clause that the materials are to be guaranteed for satisfactory performance for a period of twelve months from the date of commissioning / putting into use (or) eighteen months from the dispatch which ever is earlier and if any defect is noticed during the above period, the same shall be rectified/replaced free of cost on Ranipet/ Destination basis within a reasonable time. To this effect a Guarantee certificate should be sent along with the dispatch documents in the event an order		
16.	MSME / Non MSME Status: Pls. mention whether your company falls under the category – MSME or non MSME. If MSME - Micro, small or medium enterprise, copy of certificate attested by certified chartered accountant shall be submitted along with the offer. [IMPORTANT NOTE: - MSE suppliers can avail intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (Five years from the date of issue of acknowledgement of EM II) or valid NSIC certificate or EM II certificate along with attested copy of a chartered accountant certificate (Format enclosed as Annexure-1 where deemed validity EM II certificate of five years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed		
	documents will lead to consideration of their bid at par with other bidders. No benefits shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. Documents should be notarised of attested by a gazetted officer.]		
17.	Place of Manufacturing: Pls. mention your complete address of the place of manufacturing.		
18.	Acceptance to RA terms and conditions		

The above format shall be completely filled and deviation if any shall be clearly spelt out. The columns which are not applicable shall be mentioned as "Not Applicable". No column should be left without filled up and this may be liable for rejection of offer.

DATE:

SIGNATURE WITH SEAL

SL. NO.	DESCRIPTION	BHEL'S REQUIREMENT	SUPPLIER'S COMMENTS
01	TECHNICAL SPECIFICATION TEP:NTPC:SSPB:008:REV 01 TECI:SSPB:010: REV 00/Dt:19.11.2007	Clause wise / Point wise confirmation to be given in TOTO for all specifications & to be submitted along with offer. (i.e Xerox copy of specn duly filled with your acceptance / comments duly signed & sealed).	
02	DRAWINGS / DATA SHEETS 2-00-114-28289/REV 03	Filled Data Sheet and your Drgs are to be submitted along with offer. (if applicable).	
03	QUALITY PLAN (Applicable)	Acceptance for Quality checklist CKL:E:809/Dt:18.07.2003	
04	SPECIFICATION DEVIATION DISPOSITION REPORT (SDDR)	Attached SDDR to be filled & submit along with offer. (Even NO deviation is taken, NIL report to be submitted).	

Date:

SIGNATURE WITH SEAL

(To be submitted along with the offer)

SPECIFICATION DEVIATION DISPOSITION REPORT				
Item				
Enq. No & Date				
Vendor Name				
SPECIFICATION				
Page	Clause	Details Of Deviation With Reason	Disposition By BHEL	
Signature Of Vendor			Reviewed By	
“ AGREED DEVIATION “ if any to be incorporated in the PO in the event of order.			APPROVED BY	

Date:

SIGNATURE WITH SEAL

MASTER COPY

BHEL RANIPET	STANDARD CHECK LIST FOR LOCAL LOCKABLE PUSH BUTTONS MEANT FOR ESP APPLICATIONS	
REF.NO.	REVISION NO.	EFFECTIVE DATE
CKL:E:809	00	18 07 2003
TITLE : LOCAL LOCKABLE PUSH BUTTONS MEANT FOR ESP APPLICATIONS SIGNATURE PREPARED BY : K C GANDHI PARIMALAM REVIEWED & APPROVED BY : S ANIL KUMAR		
ISSUED & CONTROLLED BY :: QUALITY ASSURANCE BHEL, RANIPET - 632 406		
DOCUMENT STATUS ☐ ☐ INFORMATION COPY CONTROL COPY * It is a control of copy only if the mark against the control copy is in other than black color. Otherwise it will be an uncontrolled copy. Check for current revision.		
ISSUED TO :		CONTROL COPY NO. PAGE : 01 of 03

Note:

1. This is a standard check list for Local Lockable Push Buttons. Any additional project specific requirements highlighted in PO or relevant TEP shall be complied with. Any contradiction noticed in this check list with respect to enquiry requirements/TEP shall be highlighted in the offer.
2. If the acceptance criteria given in PO or TEP or approved data sheet is stringent then the one specified in this above, the requirement as per PO/TEP/data sheet will supercede the one given in the check list.

BHEL RANIPET	STANDARD CHECK LIST FOR LOCAL LOCKABLE PUSH BUTTONS MEANT FOR ESP APPLICATIONS							
REF.NO.	REVISION NO.	EFFECTIVE DATE						
CKL:E:809	00	18 07 2003						
RECORD OF REVISION <table border="1"> <thead> <tr> <th>REV.NO</th> <th>Effective Date</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>18 07 2003</td> <td>Original Issue</td> </tr> </tbody> </table>			REV.NO	Effective Date	Remarks	00	18 07 2003	Original Issue
REV.NO	Effective Date	Remarks						
00	18 07 2003	Original Issue						
		PAGE 02 OF 03						

BHEL Ranipet	STANDARD CHECK LIST FOR LOCAL LOCKABLE PUSH BUTTONS MEANT FOR ESP APPLICATION	Ref no: CKL:E:809 Rev No: 00 Date : 18 07 2003 Page 3 of 3
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FOLLOWING TESTS / CHECKS ARE TO BE DONE AS PER BHEL PURCHASE SPECIFICATION.

I. Routing Test (Sample Size : IS 2500 / Part I , IL - III , AQL 4%)

1. Visual Inspection check for any physical damage.
2. Dimensional Verification
3. verification of make., model and rating w. r. t. purchase order specification and quantity.
4. I.R (Insulation Resistance Test) at ambient Temp (IR shall be above 1 mega ohm).
5. HV (High Voltage) Tests (1.2 KV for one minute)
6. Functional Check of Push Button and Lock by pressing "ON" and "OFF" by about 10 times.

II. Type Test (Review of Type Test ** certificate for test conducted on identical design). Test can be done as per IS 2147 (1962) / IS 13947 (Latest)

1. ** Review of Enclosure protection test.

**MDCC WILL BE ISSUED BY RIO / NTPC / RANIPET BASED ON BHEL REPORT.
STANDARDS CROSS REFERED IN CHECK LIST FOR LOCAL LOCKABLE PUSH
BUTTON**

S.NO	STANDARD	DESCRIPTION
01.	IS 2147 / 1962	DEGREE OF PROTECTION PROVIDED BY ENCLOSURES FOR LOW VOLTAGE SWITCH GEAR AND CONTROL GEAR (SUPERSEDED BY IS 13947 (PART 1)
02.	IS 2500 / 1992 PART I	SAMPLING INSPECTION PROCEDURES PART I ATTRIBUTE SAMPLING PLANS INDEXED BY ACCEPTABLE QUALITY LEVEL (AQL) FOR LOT BY LOT INSPECTION.
03.	IS 13947 (PART 1) 1993	LOW VOLTAGE SWITCH GEAR AND CONTROL GEAR PART 1 GENERAL RULES.

All other requirements if any shall be ensured as per BHEL Purchase Order and BHEL Specifications/Drawings.

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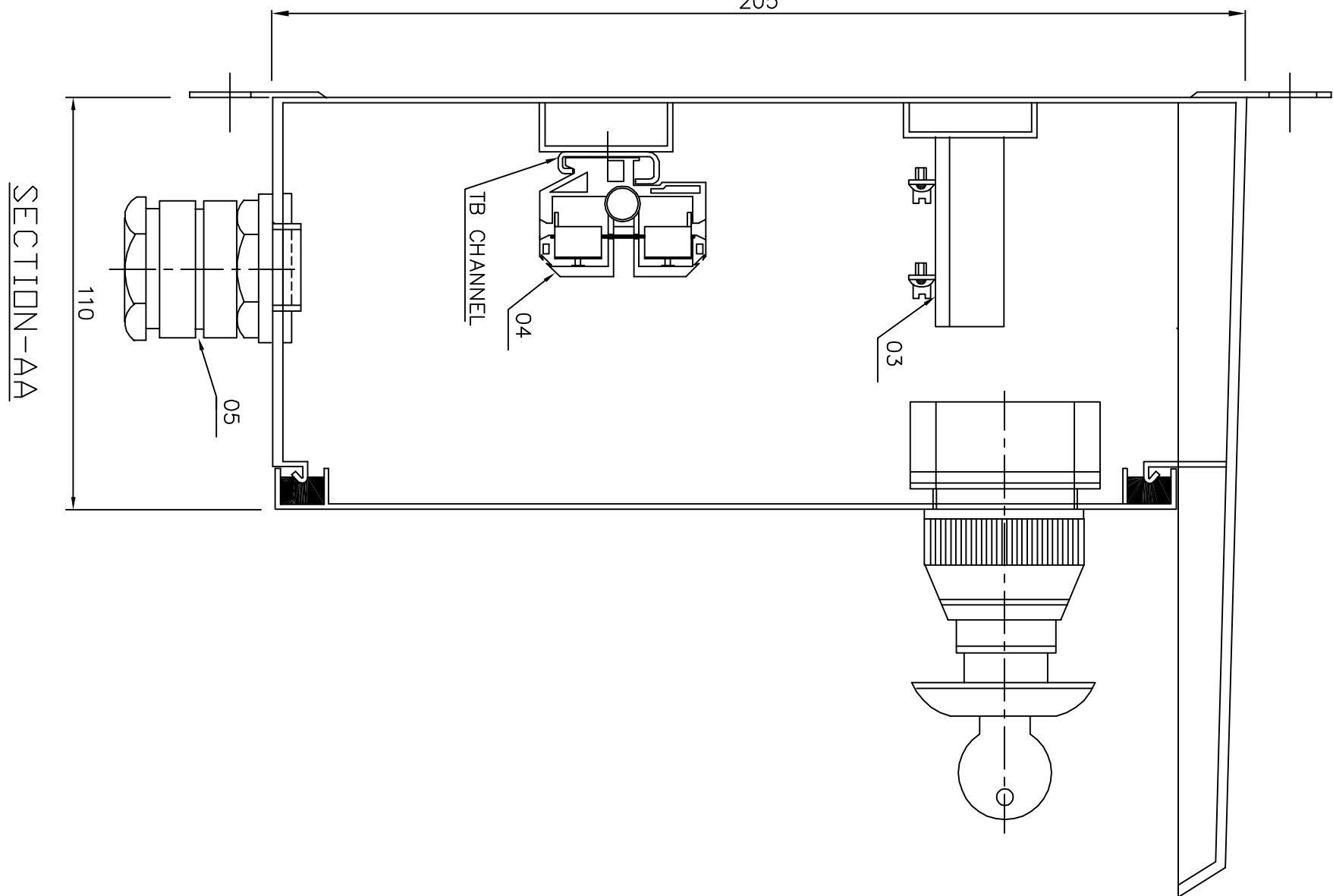
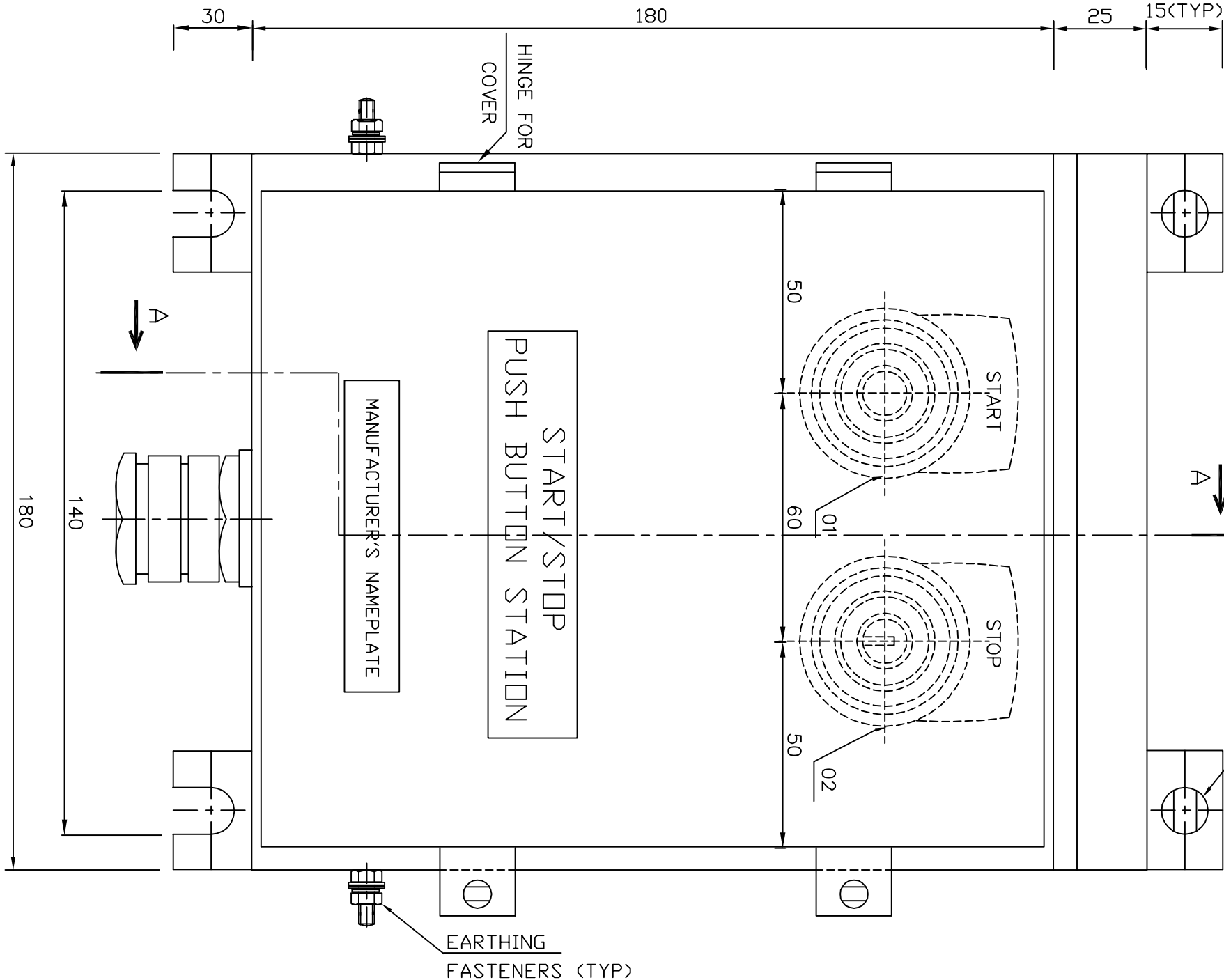
8

ON DRAWING

ALL DIMENSIONS ARE IN MILLIMETRES

SPECIFICATION:

01. LOCAL 'START' PUSH BUTTON (SIZE-DIA 22.5MM/30.5MM) SWITCH SHALL BE NORMAL TYPE AND LOCAL 'STOP' PUSH BUTTON SWITCH SHALL BE KEY OPERATED LOCKABLE TYPE. PUSH BUTTON SHALL BE SUITABLE FOR 240V. AC, 5 AMPS INDUCTIVE LOAD.
02. IN THE NORMAL POSITION THE STOP PUSH BUTTON WILL BE IN UNLOCKED CONDITION, WHEN PRESSED IT SHALL LOCK ITSELF AND CHANGE THE CONTACT POSITIONS FROM 'NO' TO 'NC' AND NC TO NO.UNLOCKING WILL BE DONE BY INSERTING THE KEY AND RELEASING THE PUSH BUTTON. IT SHALL BE POSSIBLE TO REMOVE THE KEY WHEN THE PUSH BUTTON IS RELEASED TO THE NORMAL POSITION.
03. THE HOUSING OF THE PUSH BUTTON STATION SHALL BE DESIGNED FOR IP 55 DEGREE OF PROTECTION .
04. THE ENCLOSURE SHALL BE MADE OF 2MM THICK SHEET STEEL HOUSING.
05. NECESSARY TERMINAL BLOCK AND CABLE GLAND TO TERMINATE 3C-1.5SQ.MM PVC INSULATED COPPER CABLE SHALL BE PROVIDED. THE GLAND SHALL BE OF DOUBLE COMPRESSION TYPE(NICKEL COATED BRASS).
06. THE 'NO' AND 'NC' CONTACTS SHALL BE WIRED TO THE TERMINAL BLOCK BY 2.5SQ.MM FLEXIBLE COPPER WIRE WITH ATC LUGS.
07. INTERNAL & EXTERNAL DIMENSIONS SHALL BE SUITABLY SELECTED BY THE SUPPLIER TAKING CARE OF SUFFICIENT SPACE FOR TERMINATIONS. THE OUTLINED DIMENSION ARE TENTATIVE AND MINIMUM REQUIREMENT
08. FRONT COVER SHALL BE HINGED TYPE AND SHALL BE POSSIBLE TO OPEN MIN.135°. EARTHING BOLTS AND NUTS WITH ROSE COURTEY WASHER SHALL BE PROVIDED AT OPPOSITE POINTS ON OUTSIDE OF THE PUSH BUTTON STATION WITH EARTH SYMBOL.
09. FOUR NOS.OF M8X25MM BOLT WITH NUT AND 2NOS WASHERS FOR EACH BOLT SHALL BE PROVIDED FOR MOUNTING LSSPB STATION
10. PAINT SHADE SHALL BE : RAL-5012(BLUE)
11. THE NEOPRENE GASKET SIZE SHALL BE 20mmX6mm WIDTH, SHORE HARDNESS 20 TO 30.
12. EACH PUSH BUTTON SHALL BE PROVIDED WITH 2'NO'+2'NC' CONTACT ELEMENTS SUITABLE FOR 240V AC.
13. ALL SPARE CONTACTS SHALL BE WIRED UP TO TB'S.

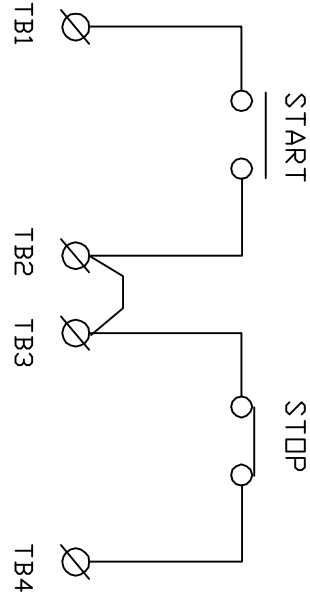
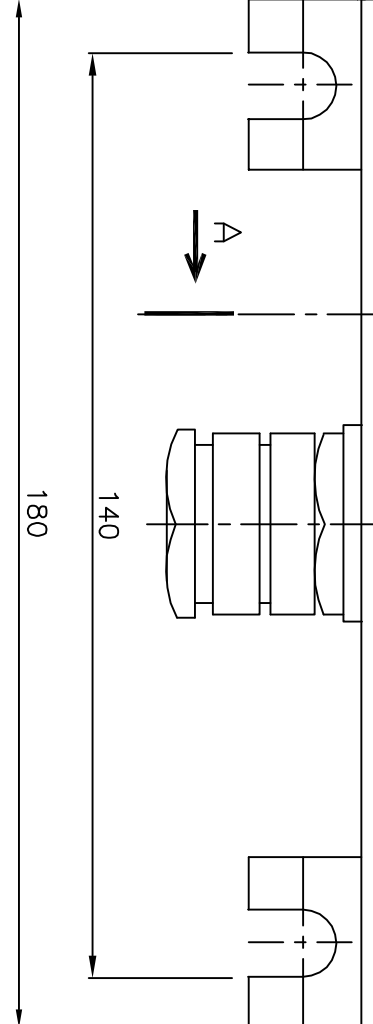


SL.NO.	DESCRIPTION	QTY (NDS)
01.	START PUSH BUTTON - GREEN	01
02.	STOP PUSH BUTTON - RED - MUSHROOM HEAD(LOCKABLE TYPE)	01
03.	PB ELEMENTS WITH FIXING SCREWS	02 SETS
04.	TERMINAL BLOCK - CSLT-1(ELMEX) OR APPROVED EQUIVALENT	08
05.	DOUBLE COMPRESSION TYPE NICKEL COATED BRASS CABLE GLAND SUITABLE FOR 3C-1S SQ.MM CABLE TYPE -CBW 01S	01
06.	ATC CRIMP TYPE LUG(FLAT PIN TYPE) FOR OUTGOING CABLES TYPE CPI-17.	10

NOTE :

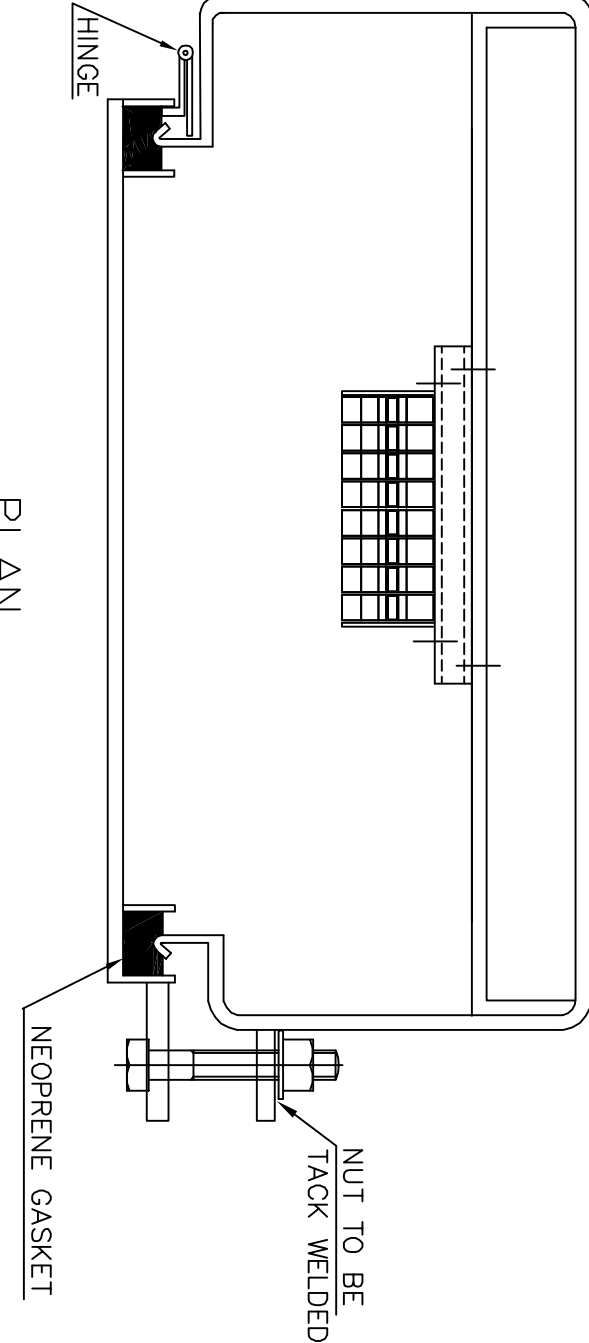
THE UN-TOLERANCED DIMENSIONS SHALL BE AS PER IS-2102.

ELEVATION



TERMINAL CONNECTION

REV	DATE	ALTERED	G.M.K
03	28.01.14	CHECKED	M.J.M
ZONE POINT NO: 01 & 10 ALTERED			



PLAN

REV	DATE	ALTERED	R.V	E. M.K
02	15.04.13	CHECKED	S.R	P
ZONE NOTE NO 06 REVISED IN BOM UNDER SL NO.05,06 TYPE NO INDICATED.				

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

PROJECT									
NATIONAL THERMAL POWER CORPORATION LTD.									
BHARAT HEAVY ELECTRICALS LTD., UNIT: BOILER AUXILIARIES PLANT. RANIPET - 632 406.									
DEPT ECI	GRADE OF UNTOOL.DIM	SCALE N T S	WEIGHT (KG).	DRN	NAME L.DEBPA	SIGN	DATE 18.03.04	NO OF VAR.	NO OF TURNS
CODE 9778	C / M / F			CHD	D.S		18.03.04		18.03.04
TITLE LOCAL START-STOP PUSH BUTTON STATION				CARD CODE U 01	DRAWING NO. 2-00-114-28289				
				REV 03					

PRODUCT STANDARD
EDC/ELECTRICAL, C&I
RANIPET – 632 406.

TECI:NTPC:SSPB:008:REV 01
PAGE 01 OF 03
EFFECTIVE DATE 20.03.2014

TITLE : TECHNICAL SPECIFICATION FOR BOUGHT ITEMS FOR ESP
ITEM : START / STOP PUSH BUTTON STATION
CUSTOMER : NATIONAL THERMAL POWER CORPORATION LTD (NTPC).

NAME		DESIGNATION	SIGNATURE	DATE
PREPARED	G.M.KUMAR	SAE	G.M. Kumar	20.03.2014
CHECKED	M JEYAMURUGANAND	DGM	M. Jeyamuruganand	20.03.2014
APPROVED	M JEYAMURUGANAND	DGM	M. Jeyamuruganand	20.03.2014

ISSUED BY

EDC – ECI

REVISION NO :01

AS MARKED : 20.03.2014

REVISION NO :00

INITIAL RELEASE : 24.01.2004

1.0 DESCRIPTION

This push button station is used to START and STOP the rapping motor locally and shall be manufactured as per the drawing referred with the enquiry/purchase order.

1.1 The Push Button shall be of one of the following make:

- (1) SIEMENS INDIA LTD.
- (2) L & T.
- (3) TEKNIC.

The push button shall specifically meet the functional requirement as indicated in the drawing.

1.2 The cable lugs shall be of DOWELLS/3D make. Type shall be of CPI-17.



1.3 The Terminal Strip shall be one of the following makes. Type shall be of CSLT-1 or approved equivalent.



- (1) CONNECTWELL
- (2) ELMEX
- (3) TOSHA

1.4 The cable gland shall be one of the following make. Type shall be of CBW-01S or equivalent approved make.



- (1) COMET
- (2) SUNIL & CO
- (3) BRACCO
- (4) QUALITY PRECISION
- (5) SIEMENS

1.5 No deviation with respect to makes is acceptable.

1.6 Neoprene gasket 20mm wide & 6mm thick with shore hardness 20 to 30 shall be provided for START – STOP Push button. Stiffener (retainer) for gasket shall be provided.

2.0 DOCUMENTS TO BE SUBMITTED AFTER P.O:

GA drawing indicating dimensions and bill of material for different components shall be submitted to BHEL for approval.

3.0 INSPECTION

Inspection will be carried out based on the following documents.

- (i) BHEL Purchase order
- (ii) BHEL Technical Specification
- (iii) BHEL approval vendor drawing
- (iv) Quality check list indicated in the enquiry / purchase order

4.0 PACKING

Each SSPB station shall be fully wrapped in plastic cover to avoid water entry and each unit shall be packed separately in card board unit. Finally all such packing shall be packed in a wooden crate.



NOTE

- (1). The sample shall be approved by engineering before bulk manufacturing.
- (2). This being a NTPC contract, no deviation with respect to this specification & enquiry drawing is acceptable.
- (3) Manufacturing and packing drawings prepared in AUTO CAD shall be submitted in SOFT MEDIA in addition to hard copies for approval by BHEL, (prior to start of manufacture) within 10 days from the date of purchase order.

TITLE : TECHNICAL SPECIFICATION FOR BOUGHT-OUT ITEMS FOR ECI
ITEM : START STOP PUSH BUTTON STATION
PROJECT : BHEL STANDARD SPECIFICATION.

NAME		DESIGNATION	SIGNATURE	DATE
PREPARED	G.M.KUMAR	SEF	<i>G.M. Kumar</i>	19.11.2007
CHECKED	J.BALACHANDRAN	DGM	<i>J. Balachandran</i>	19.11.2007
APPROVED	S.NAGARAJAN	SR.DGM	<i>S. Nagarajan</i>	19.11.2007

ISSUED BY

EDC-ECI

RECORDS OF REVISION:

REVISION NUMBER 00

INITIAL RELEASE

19-11-2007

1.0.0 **SCOPE OF SUPPLY:**

The scope of supply of SSPB includes Manufacturing, Inspection, Testing, Packing & Delivery of SSPB as per the Specification.

2.0.0 **APPLICATION:**

This push button station is used to start and stop motors locally.

3.0.0 **APPLICABLE STANDARDS:**

IS:13947,6005,694.

4.0.0 **GENERAL REQUIREMENTS:**

- | | | |
|-----|------------------------------------|--|
| 4.1 | Enclosure material | : 2mm cold rolled Sheet Steel. |
| 4.2 | Pretreatment of Sheet Steel | : Seven Tank process as per IS:6005. |
| 4.3 | Painting | : EPOXY BASED, Light Grey shade 631 of IS:5 in Semi Glossy finish (both inside & outside). |
| 4.4 | General Construction | : As per drawings, forming part of this Specification Internal & External dimension shall be suitably selected by Vendor taking care of sufficient space for termination. The dimension indicated in our drawing attached are minimum requirement which must be complied with. |
| 4.5 | Enclosure Protection | : IP 55 as per IS 13947. |
| 4.6 | Terminal Block Type | : ELMEX CST-2.5 or equivalent type of BHEL approved make mounted on DIN RAIL.
Qty : 8 nos. |
| 4.7 | Terminal Block Insulating material | : Melamine. |
| 4.8 | Terminal Block Voltage Grade | : 650 V (minimum). |
| 4.9 | Door Gasketing | : Neoprene Gasket of 6 mm thick of Shore hardness 20 & density 0.4 gm/cc shall be provided on all mating surfaces. |

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- | | | |
|------|--|---|
| 4.10 | START PUSH BUTTON | : 1 no. Green colour 22.5/30.5 mm dia, Flush type, SPRING RETURN PUSH BUTTON. with 2 NO + 2 NC contacts. |
| 4.11 | STOP PUSH BUTTON | : 1 no. Red colour 22.5/30.5 mm dia, Mushroom Head type PUSH BUTTON of press to lock & key to release with 2 NO + 2 NC contacts. Key shall be removable in lock & normal position. |
| 4.12 | Contact rating of PUSH BUTTON Elements | : 5 A, 240 V, AC. |
| 4.13 | Cable Gland Type & Qty | : 2 nos. Nickel plated brass double compression Glands with dummy plugs to suit 4CX2.5 SQ.MM Copper Ar. cable. Type CBW-02 of COMET or EQUIVALENT MAKE. |
| 4.14 | PUSH BUTTON Elements | : 2 NO + NC contacts each for Start P.B & Stop P.B shall for provided & shall be mounted separately on the base of the box.
1 NO + 1 NC elements of each P.B shall be wired to Terminal Block. as shown in the drawing using ATC lugs & 2.5 SQ.MM stranded, flexible copper wire. |
| 4.15 | Internal wiring Diagram | : A copy of the wiring diagram shall be pasted in the inside door of the box. |
| 4.16 | Cable Lugs | : a) Annealed tinned solderless crimping type copper lugs shall be provided for all the terminals on both sides of T.B. Lug type shall be Dowell's CP-19 PIN type (insulated) or Equivalent type of other BHEL approved make.
: b) Annealed tinned solderless crimping type copper lugs of Rectangular Tongue fork type (insulated) of BHEL approved make shall be provided for termination on the PUSH BUTTON Elements. |

4.17. MAKE OF COMPONENTS

: a) Push Button with elements.

- (i) SIEMENS
- (ii) L & T
- (iii) CANDS
- (iv) TEKNIC
- (v) CONTROL & SWITCH GEAR
- (vi) VAISHNAV

b) TERMINAL BLOCK:

- (i) ELMEX
- (ii) COMET
- (iii) CONTROL & SWITCH GEAR

c) CABLE GLANDS:

- (i) COMET
- (ii) BRACCO
- (iii) CONTROL & SWITCH GEAR
- (iv) SUNIL & CO

d) CABLE LUGS:

- (i) DOWELLS
- (ii) JAINSONS
- (iii) LOTUS

4.18 Front door / cover

: Hinged type as per drawing. Minimum opening of 135 deg.

4.19 Earthing Terminal

: 2 nos. Earthing bolts & nuts with ROSE COURTNEY washer along with earth Symbol to be provided at opposite points on the Outside of the box.

4.20 Mounting Bolts

: 4 nos. of M8 X 25 mm Bolt with Nut & 2 nos. washers for each bolt to be provided.

4.21 Name Plate

: Non Rusting 2 Ply Lamicoid make
Name plate with suitable inscription
shall be provided with a clear transparent
sheet as follows:-

SUPPLIER NAME

START/ STOP
PUSH BUTTON STATION
FOR ESP – BAP/RANIPET

5.0.0 **INFORMATIONS TO BE FURNISHED ON PLACEMENT OF ORDER:**

GA Drawing indicating dimensions and bill of materials for different components for Approval.

6.0.0 **PACKING:**

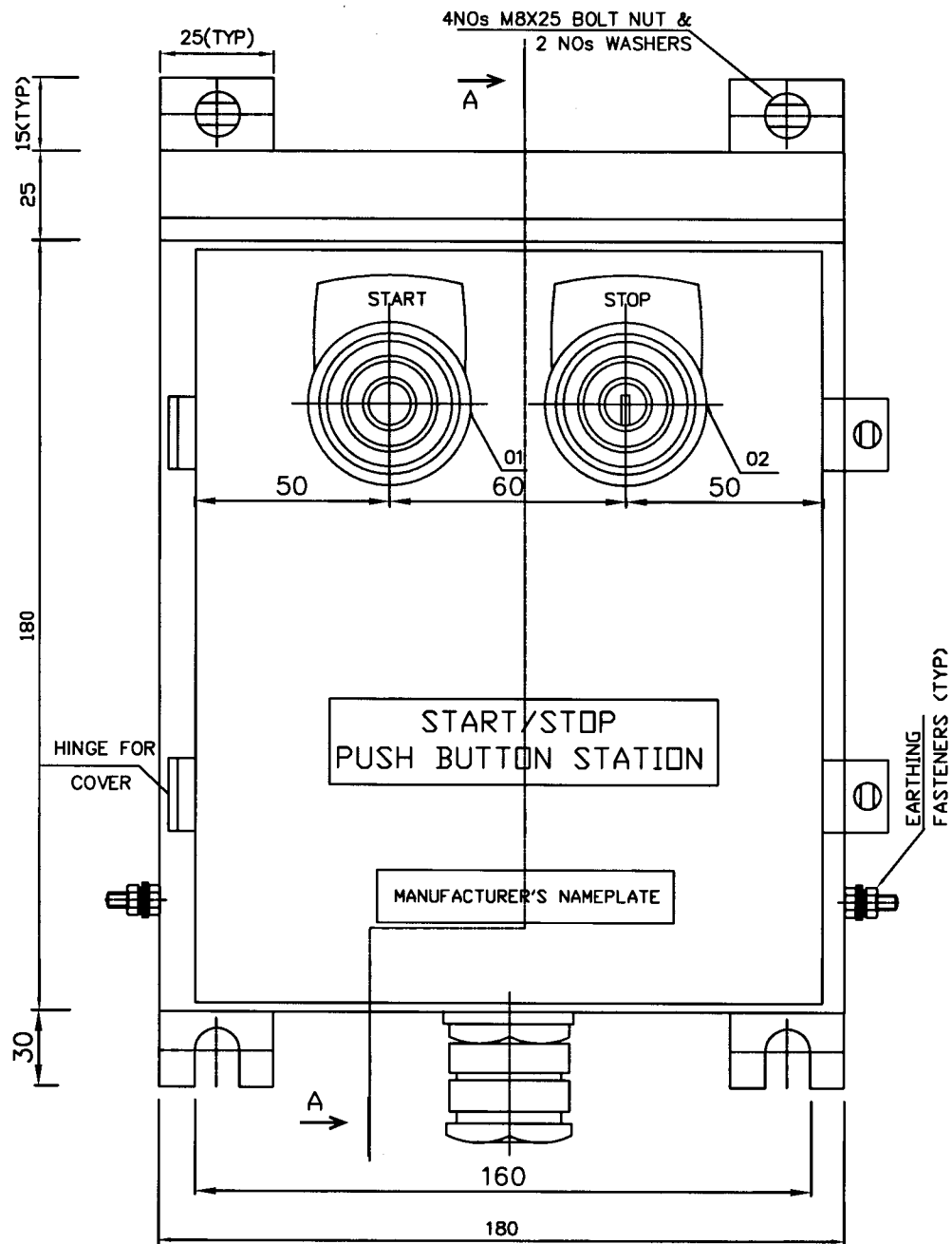
Each Start – Stop Push Button station shall be fully wrapped in a polythene cover to avoid water Entry and then packed in a cardboard box. Finally all such boxes shall be packed in a Wooden crate.

NOTE:

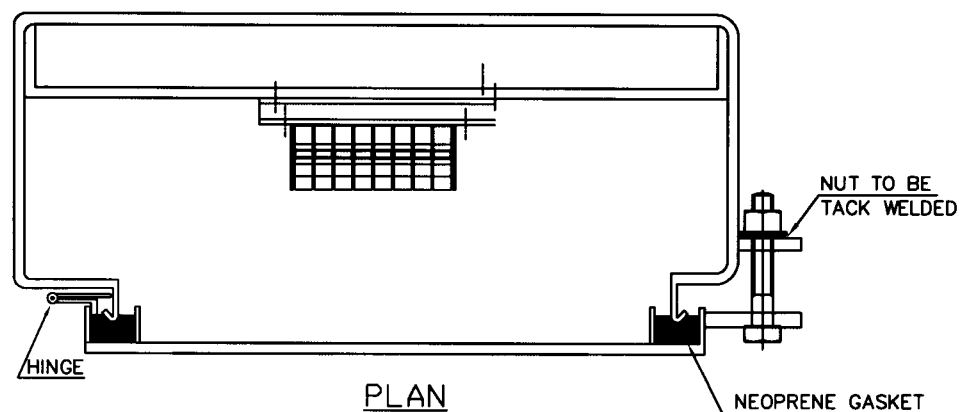
The sample shall be approved by BHEL before bulk manufacturing. (in case of new vendor & first time supply).

7.0.0 **IP 55 TEST:**

IP 55 test as per IS : 13947 shall be conducted as Type test in the presence of BHEL representative for first time supply to BHEL.

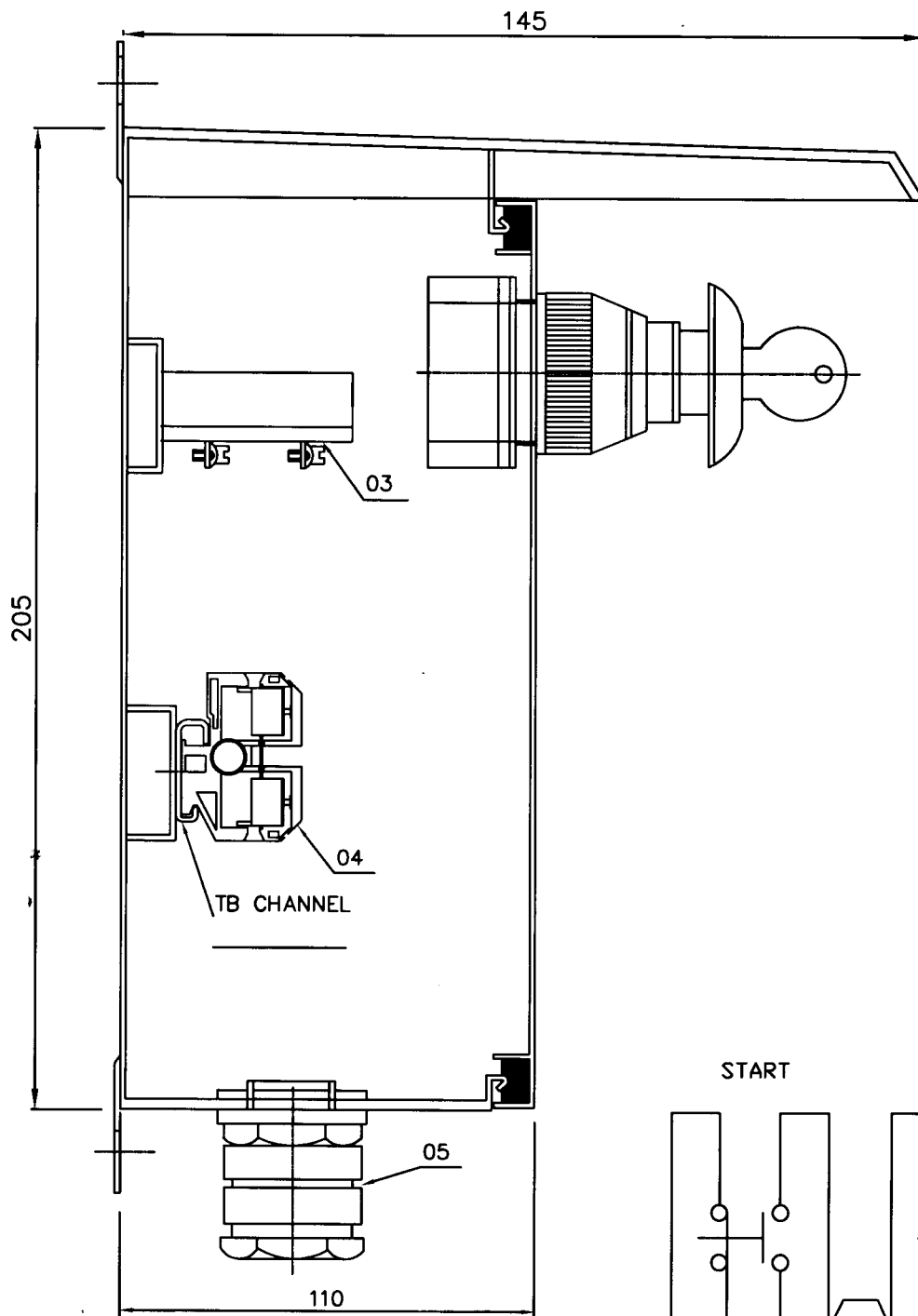


ELEVATION

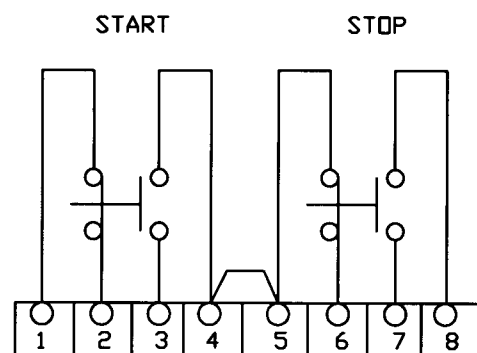


PLAN

NOTE :
THE UN-TOLERANCED DIMENSIONS SHALL BE AS PER IS-2102.



SECTION-AA



TERMINAL CONNECTION