

Bharat Heavy Electricals Limited
High Pressure Boiler Plant, Tiruchirappalli - 620 014.



Technical Specification of
Fogging Push Button Station

TDC:TCI:SCR:FP:F

Project: BHUSAWAL TPS - (1X660 MW)

Rev.no.	Date	Description of events	Prepared	Reviewed	Approved
00	05-06-2021	Initial release	Balaji K <i>Balaji K</i>	Balaji K <i>Balaji K</i>	A K Panda <i>A K Panda</i>

The intended application of Flame-proof Fogging Push Button (PB) station is to initiate fogging by operator in case of ammonia leak in Ammonia unloading and injection process in Selective Catalytic Reduction (SCR) process for Nox reduction in thermal power plant. On pressing the Fogging push button, corresponding solenoid valve will open and water will start flowing to arrest ammonia spread. Hence all the components in the PB station including PB station enclosure shall be selected to be fit for use in industrial applications with corrosive and dusty environment and shall be corrosion resistant to anhydrous ammonia vapours in particular.

Fogging push button station should be made from Cast Aluminium (LM6 grade), dust and vermin proof, suitable for outdoor use. Thickness of material shall be suitably selected considering the application and hazardous area classification. Fogging push button station should be suitable for column/structure/wall mounting and shall be provided with all mounting accessories. The enclosure shall have an IP-65 (as per IS 60529) protection rating. Valid type test certificate for enclosure protection not earlier than 5 years from date of enquiry shall be submitted by vendor.

All the equipment shall be suitable for use in hazardous area classification NFPA 70 Class 1, Div. 1, Group D or Equivalent. Temperature rating shall be T4. Valid certification for Fogging PB station, warning lamp and warning horn, not less than 5 years from recognized agencies like CIMFR or ATEX or IECEx etc. shall be furnished for the same. All the equipment shall bear valid certification/approval from CCOE/PESO in addition. The flameproof test certificate for Fogging PB station shall be for an enclosure of similar dimensions. If valid type test certificate is not available with the vendor, type tests to be conducted at vendor's cost, without any commercial implication to purchaser.

The Fogging push button station shall be provided with SS-304 name plate and two numbers of earthing terminals.

Fogging push button shall have mushroom head which is very easy to operate in emergency conditions. The push button should be red colour and background mount in yellow colour. The push button shall be stay put, push-pull type (press to actuate and twist to release type) provided for emergency applications. Industrial-grade push buttons shall be provided. Push button shall have VDE, CE, UL, CSA or BIS approval with CM/L number.

Fogging push button shall have minimum 2 NO and 2 NC electrically separate contacts, rated 10A at operating voltage, prewired and terminated neatly in terminal blocks to facilitate further wiring to control system by customer.

All the wiring shall be done by 1100V grade, 1.5 Sq.mm PVC insulated stranded copper conductor cable. Each wire shall be identified at both ends by ferrules with wire designation.

Terminals shall have provision for connecting at least 2 Nos. 2.5 Sq.mm Copper cables and shall be rated for carrying the current.

Exterior of the Fogging push button station shall be epoxy painted with RAL 7032 and interior shall be painted with Brilliant white. Paint thickness shall be 75 micron (outer) & 50 micron (inner).

Ammonia is reactive with galvanized surfaces. Hence any galvanized/zinc surfaces shall be avoided. Any material which is corrosive to anhydrous ammonia shall be avoided.

Flame proof cable glands and dummy plugs compatible to area of classification shall be provided by the vendor for the cable sizes and cable OD's indicated below. The number of entries shall be as indicated.

Cable Entries to Fogging Push Button Station – 1 No.

Entry no.	Type of Cable	Cable OD (in mm)*	Purpose of Cable
1	4 P X 0.5 Sq.mm Cu Signal	15.0	For push button feedback to DCS.

The dimensions, internal layout and mounting of components shall be decided by vendor. The push-button station shall be liberally sized for spacious layout and clean wiring for easy access during maintenance. Vendor to submit manufacturing drawings for customer approval after placement of PO.

Vendor to submit Vendor Quality Plan (VQP) for review and approval. Inspection for the final Fogging push button station will be conducted at vendor works by BHEL/Customer. All required facilities for proper inspection at vendor works shall be arranged by vendor.

Vendor shall be fully liable for proper, sufficient and adequate packing, completeness of contents, protection of contents during storage time and correct preparation of the packing list. Packing and conservation of goods shall be sufficient to protect from damage during transit from point of manufacturer and storage at job site under conditions which may involve multiple handling, extended storage, exposure to moisture and the possibility of pilferage. Packing shall be sufficient to prevent rain water entry. For minimum packing instructions, the document QA:CI:STD:PR:02 Rev 03 attached along with this specification shall be referred.

The major BoM per Fogging PB station shall be as follows.

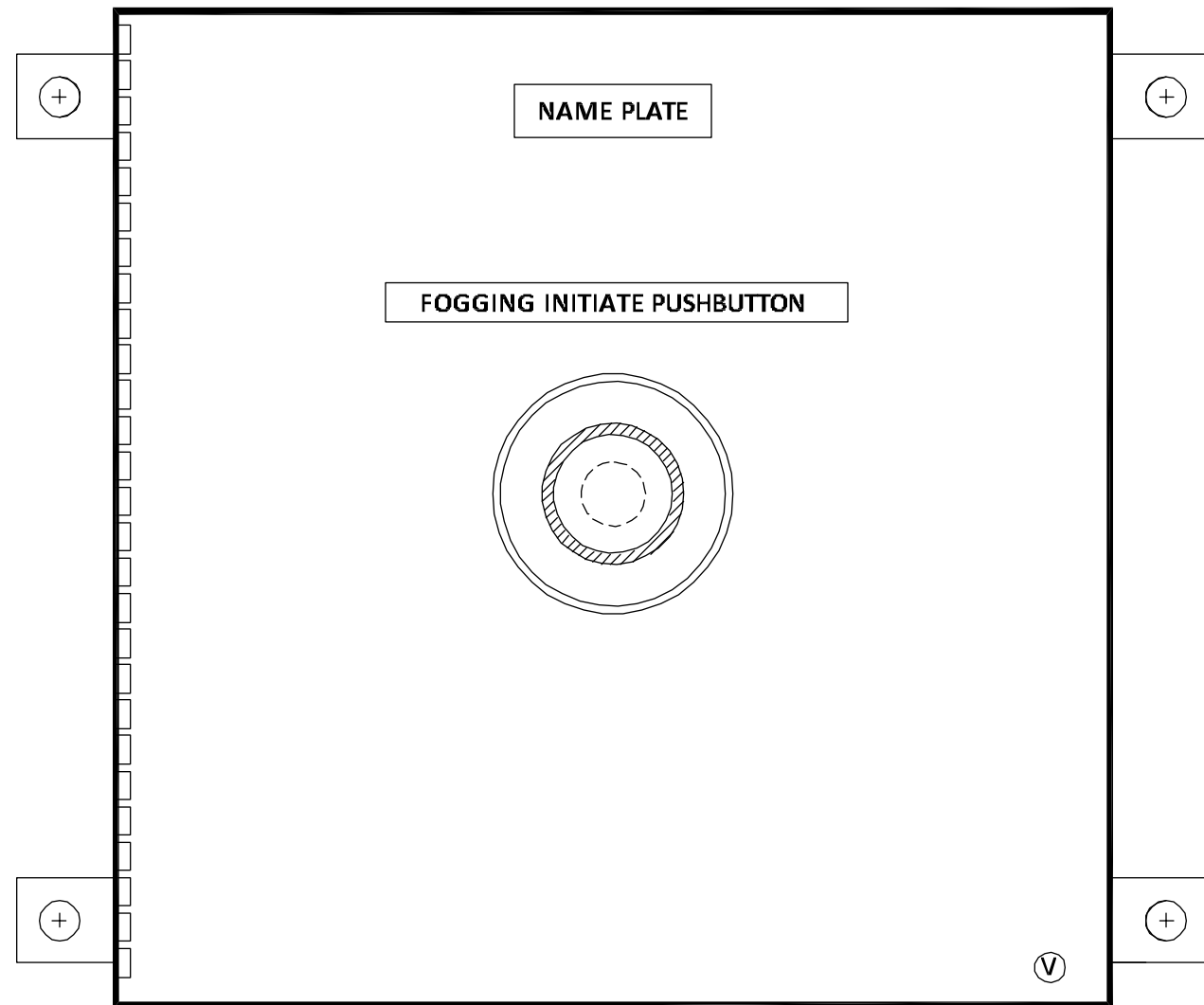
Sl no.	Description	Make & Model	Quantity
1	PB station Enclosure	OEM make	1 No.
2	Fogging push button, Mushroom head, Green Colour	Vendor to indicate	1 No.
3	Flameproof Brass Cable Glands	Vendor to indicate	1 No.
5	Terminal Blocks	Vendor to indicate	As per GA drawing

Documents required along with the offer:

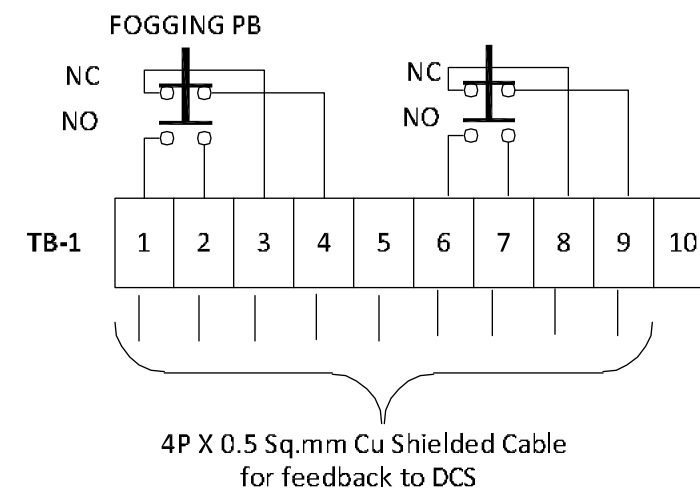
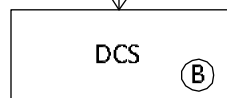
- 1) Filled in Sub-delivery enquiry deviation format indicating any deviation from the enquiry specification. If no deviations are there, the fully filled up, signed and stamped format shall be returned indicating "No deviation". Only deviations indicated explicitly in the format and accepted by BHEL in writing will be considered in the event of an order.

Documents required along with the offer:

- 1) Detailed manufacturing drawings indicating GA, internal layout.
- 2) Model number, catalogue and datasheet of Fogging Initiate push button,
- 3) Detailed Bill of Materials (BoM)



4P X 0.5 Sq.mm Cu Shielded Cable (B)



NOTE:

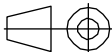
- 1. TB-1 IS LOCATED INSIDE FOGGING PUSHBUTTON STATION
- 2. FLAME PROOF CABLE GLANDS IN VENDOR SCOPE

LEGEND:

- (B) BHEL Scope
- (V) VENDOR Scope

REV	DATE	ALTERED :
		CHD./APPD. :
ZONE		

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TYPE OF PRODUCT OR NAME OF CUSTOMER / PROJECT					STANDARD				
	Bharat Heavy Electricals Ltd UNIT: HIGH PRESSURE BOILER PLANT TIRUCHIRAPPALLI - 620014				DRN	NAME A. Thamburaj	SIGNATURE 	DATE 09-12-20	NO. OF VAR
					CHD	K.Balaji		09-12-20	—
					APPD	A.K.Panda		09-12-20	
DEPT. : C & I		ALL DIMENSIONS ARE IN MM	SCALE NTS	WEIGHT (Kg) —	REF TO ASSY / OLD DWG —			ITEM NO —	No OF ITEMS —
CODE : 392									
TITLE OGA FOR FOGGING PUSHBUTTON STATION					CARD CODE U 01	DRAWING NO: 3-96-191-XXXXX Sheet 01 Of 01			REV 00