



**SPECIFICATION FOR
NON - METALLIC
EXPANSION JOINTS**

**SPECN .NO
DU/Tuticorin-
FGD/NMEJ**

**PAGE
1 of 14**

REV.No. : 01

**BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPALLI-620 014**

DUCTS / PE (BOILERS)

Item Code: 48NMJ

**NTPL TUTICORIN FGD (CUST. No. 8207 to 8208)
(2x500 MW)**

**SPECIFICATION
FOR
NON METALLIC EXPANSION JOINTS
(FLUE GAS DUCT)**

REVISION HISTORY

REV. NO.	PAGE	REVISION HISTORY	DATE	PRPD	CHED	APPD
00	All	Original Release	20.11.2021	Manoj	HSP	MRS
01	All	Second Release	24.12.2021	Manoj	HSP	MRS



**SPECIFICATION FOR
NON - METALLIC
EXPANSION JOINTS**

**SPECN .NO
DU/Tuticorin-
FGD/NMEJ**

**PAGE
2 of 14**

REV.No. : 01

CONTENTS

Clause No.	DESCRIPTION
1.0	SCOPE OF WORK
2.0	SCOPE OF SUPPLY
3.0	SERVICE CONDITION
4.0	DESIGN REQUIREMENT
5.0	QUALITY ASSURANCE AND TESTING
6.0	PACKING, PAINTING AND SHIPPING
7.0	GUARANTEE
8.0	O & M
9.0	DOCUMENT SUBMISSION
10.0	SPECIAL REQUIREMENTS
11.0	GENERAL DATA
12.0	ANNEXURES



**SPECIFICATION FOR
NON - METALLIC
EXPANSION JOINTS**

**SPECN .NO
DU/Tuticorin-
FGD/NMEJ**

**PAGE
3 of 14**

REV.No. : 01

Clau se No.	DESCRIPTION
1.0	SCOPE OF WORK This specification is for the supply of non-metallic expansion joints which are to be used in the air and flue gas duct systems of coal fired steam generators.
1.1	SCOPE OF WORK INCLUDES THE FOLLOWING The specification covers the requirement for the A) Design B) Manufacture C) Testing D) Packing for shipment & delivery E) Supervision for installation (Offer for this portion to be separately brought out) Non-metallic expansion joints(NMEJ) are to be used in the air, flue gas, FGD absorber outlet duct work of the coal fired steam generators. NMEJ shall be suitable for the most adverse operating condition of the duct system. The method of execution for the above scope of work is as follows. i) Steel frame and fabric components are to be despatched separately to site. ii) Steel frames of beyond transportable size can be sent in split condition and assembled at site. iii) These steel frames and fabric components and canopy are to be fully assembled at site on ground. iv) Matching duct to be checked and ensured for alignment by the bidder prior to installation of NMEJ in the ducting system. Bidder to prepare joint protocol with site. v) Installation / erection of NMEJ in ducting system to be supervised by the bidder. vi) Drawing approval from BHEL before manufacturing vii) Bidder to avoid neck offset design.



SPECIFICATION FOR NON - METALLIC EXPANSION JOINTS

SPECN .NO
DU/Tuticorin-
FGD/NMEJ

PAGE
4 of 14

REV.No. : 01

2.0	SCOPE OF SUPPLY: - The extent of supply includes the following of the NMEJ assembly. <table border="1" data-bbox="475 510 1050 741"><thead><tr><th></th><th>Tag-No.</th><th>Qty. in No.</th></tr></thead><tbody><tr><td>Unit-1</td><td>8207-NMEJ-001</td><td>1</td></tr><tr><td>Unit-1</td><td>8207-NMEJ-002</td><td>1</td></tr><tr><td>Unit-2</td><td>8208-NMEJ-001</td><td>1</td></tr><tr><td>Unit-2</td><td>8208-NMEJ-002</td><td>1</td></tr></tbody></table>		Tag-No.	Qty. in No.	Unit-1	8207-NMEJ-001	1	Unit-1	8207-NMEJ-002	1	Unit-2	8208-NMEJ-001	1	Unit-2	8208-NMEJ-002	1
	Tag-No.	Qty. in No.														
Unit-1	8207-NMEJ-001	1														
Unit-1	8207-NMEJ-002	1														
Unit-2	8208-NMEJ-001	1														
Unit-2	8208-NMEJ-002	1														
2.1	FABRIC: (a) PTFE coated glass fabric. (b) Minimum Tensile strength of fabric (in N/50mm) : 6000 (warp) & 6000 (weft).															
2.2	SUPERSEAL: a) In between cloth and duct flange. b) In between cloth and FRP pipe flange.															
2.3	OTHER PARTS: STEEL a) All steel parts from inlet flange to outlet flange, with internal supports b) Liner plates are to be provided for all air and flue gas expansion joints. c) All fasteners, Backup bars etc. for connecting the fabric with steel parts. d) All necessary transport clamps / frames lifting lugs for shipment. CANOPY Since the NMEJ is installed in the course of erection of ducting system fabric portion of the expansion joint may get damaged. To protect it from falling object or weld spatter, suitable external protection cover (CANOPY) shall be supplied. The extent of supply stated here in is not necessarily exhaustive and shall not relieve the bidder from his responsibility to provide goods and service necessary to satisfy the performance criteria and guarantee specified. I. NMEJ corners are to be fully covered by canopy. II. The canopy fixing clamps (Ear lug) shall be an integral part of the															



SPECIFICATION FOR NON - METALLIC EXPANSION JOINTS

SPECN .NO
DU/Tuticorin-
FGD/NMEJ

PAGE

5 of 14

REV.No. : 01

canopy plate. No tack welding of canopy joint is permitted over the fabric assy.

- III. The drg. showing the arrangement of canopy is to be submitted for approval.

FRP PIPING & APPURTENANCES

FRP pipe of Length equal to width of duct (if supplied in two lengths/pieces- mounting flange, gasket and fasteners also to be provided for connection). One end with dummy flange other end with 90 deg elbow shall be provided with flange, counter flange and required fasteners.

- a) Stub length to be gradually increased to maintain 1:50 gradient for free flow of condensate.
- b) At the bottom of non-metallic expansion joints for every one-meter drain hole shall be provided as per enclosed sketch.

In general, wherever flanged connections are envisaged, bidder shall supply counter flange with fasteners.

FASTENERS

- a) M16x60 –
 - (i) for mounting cloth with Duct frame - bidder scope.
 - (ii)for mounting Drain flange(cloth) with FRP stub flange– bidder scope.
- b) M16x80 - For mounting two pieces of FRP pipe (if applicable), and at the end for mounting dummy and elbow with flange & counter flange with fasteners– bidder scope.
- c) M12 U-clamps with nuts & washers – for fastening FRP pipe with support (minimum 2nos for each FRP drain pipe)- bidder scope.

BACKUP PLATE/RING-(GI)

- a) On the back of Cloth- GI Backup Flat - Bidder scope.
- b) On the back of drain flange(cloth): - GI Back-up Flange - Bidder scope.
- c)On the Back of FRP Flange: - GI Split Flange – Bidder scope.

For General arrangement refer **Annex-1:SK-NMEJ-001.**



**SPECIFICATION FOR
NON - METALLIC
EXPANSION JOINTS**

**SPECN .NO
DU/Tuticorin-
FGD/NMEJ**

**PAGE
6 of 14**

REV.No. : 01

2.4	ELIGIBILITY a) Bidder / his principal should have experience in supplying NMEJs for at least two coal fired power stations of capacity 270 MW or more where the design and material chosen for this contract is working satisfactorily for more than 20,000 operating hours. This is w.r.t pressure temp size operating conditions and dust burden as called for in the enclosed data sheets. b) Bidder should submit performance certificate from these two coal fired power stations. c) Bidder to establish that the design offered is same as that of the reference contracts by submitting drawing and data of the same.
3.0	SERVICE CONDITION: Expansion joint design inputs are given in Annex-2:SK-NMEJ-002 . NMEJ shall be suitable for the adverse operating condition of the duct work.
4.0	DESIGN REQUIREMENTS:
4.1	GENERAL a) For fabric layer, bidder has to clearly specify its description, composition, thickness and physical and chemical properties. Bidder to provide DATA sheet on the design selection and all the relevant data for each layer to be filled in and submitted along with the offer. This will be subjected to scrutiny by the owner and improvement commented are to be accommodated by the bidder during technical evaluations. b) Proposed field splices and their locations to be clearly indicated in the offer. c) There shall be no leakage through the joint into or from the atmosphere. d) Expansion joints shall have adequate mating surfaces and connecting flanges/channels for attachment to the duct work. COLD PRESET: - Cold pre-set in connecting duct system is not envisaged. Hence bidder to design the NMEJ for the design movement without cold pre-set.
4.2	FRAME - a) Material of frame shall be same / equivalent as the duct and minimum thickness shall be same as that of duct.



SPECIFICATION FOR NON - METALLIC EXPANSION JOINTS

SPECN .NO
DU/Tuticorin-
FGD/NMEJ

PAGE

7 of 14

REV.No. : 01

- b) Composite section of the frame on each side of the fabric joint shall be sized to withstand at least 50% greater than the maximum pressure condition stated in the specification.
- c) For bigger size frame internal strut pipe can be used. Bidder to indicate the internal strut arrangement in the proposal drgs. Frame should be a bent construction with minimum welding. Thickness of clamping bar and frame flange is minimum 10 mm to be maintained. Strut pipe material shall be of Acid corrosion resistant.
- d) Clamping arrangement to retain the compressed breech opening to be provided externally. drawing of typical clamping arrangement to be submitted for approval .

4.3

FABRIC

Due consideration shall be given for the following in selection of the gas seal membrane, insulating layers, insulation retainer and encasement layer etc.

- a) Functional requirement.
- b) Temperature capability.
- c) Chemical resistance

Bidder to furnish justification for the selection of the materials, its properties, and its adequacy for the intended purpose/service conditions. Bidder should furnish the design factors taken in to consideration while designing these Expansion joints. These should include provisions taken for adverse operating conditions like over stretching etc. Bidder to furnish the basis for fabric width arrived at.

Tolerance on matching Duct:

Bidder to Engineer the NMEJ to take care of the following tolerance on matching Ducts.

Axial +/- 5 mm Lateral +/- 5 mm

Floating sleeve angle overlap to be at least 50 mm (min) in cold condition, to take care of variations in breech opening tolerance etc., For other cases the length of flow liner shall be selected to completely cover the NMEJ in cold condition.

For standard elastomers properties and temperature limitation as given in the "TECHNICAL HAND BOOK FOR DUCTING SYSTEM NMEJ " of "FLUID SEALING ASSOCIATION " shall apply.



**SPECIFICATION FOR
NON - METALLIC
EXPANSION JOINTS**

**SPECN .NO
DU/Tuticorin-
FGD/NMEJ**

PAGE

8 of 14

REV.No. : 01

4.4	ACCESSORIES:
4.4.1	FLOW LINERS: Minimum thickness of liners wherever provided shall be of duct plate thickness. Integral or welded type can be provided. They shall not interfere with the movement of the joint.
4.4.2	FASTENERS: All fasteners shall be cadmium coated
4.4.3	BACK UP BARS: a) The minimum size of the back up bar shall be 50 mm x 10 mm thick b) The back up bar and flange are to be match drilled. c) Slotted holes are not permitted. in the back up bar d) All sharp edges that may come in contact with the flexible element should be ground smooth or rounded off to prevent damage to the flexible element. e) Minimum bolt size M12 and pitch 100 mm is to be provided. f) Use torque wrench for tightening the fasteners with fabric
4.5	The non-metallic shall be made of asbestos free materials. Fabric compensators shall be suitable for most adverse operating conditions of the duct work and shall not support the duct work.
4.6	The basic material for NMEJs are to be selected as per FSA or any other equivalent National / International standards which shall be clearly specified in the offer. The copy of such standard shall be given upon order of NMEJs.
4.7	The fabrics shall be tested as per suitable IS/ASTM/DIN or other international standards. Composite fabrics shall be tested for temperature withstand ability and permeability. The outer cover shall preferably be elastomer coated for better corrosion and abrasion resistance and weather ability. Bidder has to provide fabric selection standards and testing standards.
4.8	Bidder shall furnish design calculations along with the offer for service temperature of expansion joint for review and approval by BHEL.
4.9	Temperature gradient curve across the fabric shall be submitted along with the offer. Calculations for the predicted temperature drop curves for various layers are to be provided.



**SPECIFICATION FOR
NON - METALLIC
EXPANSION JOINTS**

**SPECN .NO
DU/Tuticorin-
FGD/NMEJ**

PAGE

9 of 14

REV.No. : 01

4.10	The 'K' value (Thermal conductivity) of each and every fabric shall be furnished.
4.11	The corrosion resistance barrier shall be free from pin holes, needled glass mats of 10mm thickness with mechanical bonding shall be used.
4.12	The fabric material used shall be suitably selected to resist low temp corrosion.
4.13	Ash load is to be considered for the design of some of the expn. joints as mentioned in the data sheet (Refer Annex-2 Doc.No.SK-NMEJ-002). The liner plates are to be suitably stiffened to take care of the ash load.
4.14	Wherever required, the expansion joints shall be designed with suitable insulation to avoid of dust accumulation between the fabric and liner plate.
4.15	Type of fabric used, width and length of each fabric used for each tag nos are to be provided along with offer.
4.16	Torque values and sequence of tightening of bolts to connect the fabric with frame and frame to duct flange is to be provided with the offer.
4.17	Packing procedure, packing drawing and max. outside dimension of the packing for each tag nos. are to be provided along with the offer.
4.18	Transport to site is in bidder' s scope. In case of any damage during transport, it should be rectified/ replaced within 15 days at bidder's cost.
4.19	Dust barrier is to be provided for all gas duct expn joints
4.20	Field splices of the NMEJ shall be at the point of minimum stress in the erected position. Refer Annex-3:SK-NMEJ-003 .
4.21	CAUTION: Deviation report is to be provided along with the offer. Without this, the offer will not be considered for technical evaluation
4.22	Considering the specific site conditions, it may become necessary to resort to insitu erection of few NMEJs. All necessary Scaffolding for INSITU installation will be provided by BHEL.



SPECIFICATION FOR NON - METALLIC EXPANSION JOINTS

SPECN .NO
DU/Tuticorin-
FGD/NMEJ

PAGE
10 of 14

REV.No. : 01

5.0	QUALITY ASSURANCE AND TESTING
5.1	Bidder shall generate and submit for approval a quality plan with stage inspection of frame, fabrics and complete trial assembly of NMEJs. that sets out the quality control activities, which shall be carried out as a minimum to verify conformance with specified requirement.
5.2	Bidder should provide sample test data demonstrating the ability of the selected expansion joint composite fabric materials to with stand the max temp required as specified in this specification.
5.3	The data should include temperature at the inside and outside surface of each layer of the fabric and the ambient external temperature.
5.4	<p>The fabric materials shall be tested for a minimum of 4 hours after steady state condition is achieved. At the end of the test the fabric materials shall be checked for visual damages if any.</p> <p>Damage in fabric materials is not acceptable.</p> <p>Further the tested samples shall again be tested for tensile and elongation.</p> <p>The achieved tensile and elongation values shall be within 80% of the original tensile and elongation value of the fabric materials.</p>
5.5	<p>Followings are tests to be performed on the fabric.</p> <ul style="list-style-type: none">a) Flex -durability testb) Temperature withstand ability test – (To be done for the max temperature specified on the fabric combination)c) Permeability testd) Pin - hole teste) Tensile test (before & after pressure and temperature withstand ability test)f) Joint - efficiency test. <p>All tests shall be made at the bidder' s works and necessary infrastructure shall be available with bidder. All tests shall be witnessed by BHEL Engg / QA. Detailed test procedures to be submitted along with the typical quality plan during offer stage itself. Material tests certificates shall be submitted during inspection.</p>
6.0	PACKING, PAINTING AND SHIPPING
6.1	Bidder shall submit packaging details to BHEL along with the offer for approval. Generally, the packing provided should prevent mechanical damages as caused by stacking, bumping, dropping or dragging. Fabric



SPECIFICATION FOR NON - METALLIC EXPANSION JOINTS

SPECN .NO
DU/Tuticorin-
FGD/NMEJ

PAGE
11 of 14

REV.No. : 01

	<p>parts to be provided with water proof packing to avoid damages during transit and storage . Fabric (Tag number wise) to be packed and despatched separately. It should not clubbed with other Tag Nos.</p>
6.2	<p>Marking and painting: Before shipment, all parts of the equipment shall be thoroughly cleaned of all mill scale, rust, grease, and other foreign matter. All external metal surfaces shall be given shop coat of paint as detailed below.</p> <ul style="list-style-type: none">a) Surface preparation & Surface profile: SSPC-SP3/Power Tool Cleaningb) Primary Coat: Two coats of Heat Resistant Aluminium Paint to IS-13183 Gr.II/ DFT 20 microns per coat
6.3	<p>Each joint shall be provided with indelible marking of with a permanently attached name plate giving the manufacturer's name, joint serial number and model or style designation</p>
6.4	<p>Piece marking is required for field installation; the joints shall be clearly marked accordingly.</p>
6.5	<p>Each joint shall be clearly and permanently marked showing "GAS SIDE " and "OUTSIDE " facing.</p>
6.6	<p>Metallic flow direction indicator shall be affixed in all the expansion joints.</p>
6.7	<p>SHIPPING REQUIREMENT</p> <ul style="list-style-type: none">a) bidder shall adequately crate, block anchor and protect equipment as required to prevent damage during shipment. All containers shall be clearly labelled with handling instruction and sling position Equipment shall be shipped fully assembled unless dismantling is necessary for shipping or installation reasons.b) All containers and all pieces shipped individually shall be clearly labelled with the following information:<ul style="list-style-type: none">i. Bidder's nameii. Destinationiii. Case, Tag and piece numbersiv. Shipping Weights and dimensionv. Storage requirement
6.8	<p>SHIPPING LIMITATIONS:</p> <p>Width = 3500 mm Length = 13000 mm</p>



SPECIFICATION FOR NON - METALLIC EXPANSION JOINTS

SPECN .NO
DU/Tuticorin-
FGD/NMEJ

PAGE
12 of 14

REV.No. : 01

	<p>Height = 3000 mm Weight = 20000 Kgs</p> <p>The above are normal shipping limitations. To minimise field assembly this can be extended case to case after mutual agreement.</p>
7.0	GUARANTEE:
7.1	The minimum trouble free operational life of expansion joint shall not be less than 20000 hrs of operation from the date of commissioning. Bidder to guarantee.
7.2	During the guarantee period, the expansion joint shall with stand from corrosion acid attack and erosion from grits entrained in the stream. They shall also be proof against premature failure from fatigue due to excessive flutter caused by pressure pulsations from the fans.
7.3	In the event of guarantee invocation, the bidder shall be responsible for complete replacement of the failed joint or part thereof including the cost of labour, lifting equipment and the necessary scaffolding.
8.0	O&M: 5 copies of operation & maintenance manual, detailing the following shall be supplied. <ul style="list-style-type: none">a) General arrangement. drawing with part /material listb) storage instructionsc) Installation instructionsd) Repair procedures including on line maintenance procedures.e) Any special operating instructions.f) Copies of approved drawings for each Tag Numberg) Typical installation arrangement details for adjoining ducts.h) One copy of typical O&M manual is to be supplied along with Offer for evaluation.
9.0	DOCUMENT SUBMISSION Following documents / information shall be furnished with the offer. <ul style="list-style-type: none">1. Complete and sufficient information shall be furnished to technically evaluate the offer against specification requirements. Incomplete / insufficient information / details are liable for rejection.2. Calculation for Fabric width selection3. Temperature drop calculations with graphs and K-value for each fabric material have to be provided.4. Confirmation of scope of work, design basic with description and



SPECIFICATION FOR NON - METALLIC EXPANSION JOINTS

SPECN .NO
DU/Tuticorin-
FGD/NMEJ

PAGE
13 of 14

REV.No. : 01

- applicable codes and standards.
5. Samples of the fabric combination and wire mesh are to be submitted along with the offer. Offers will not be considered without samples.
 6. Photograph/Video/3 Dimensional view of the similar type NMEJ.
 7. Point wise confirmation / comments on the specification.
 8. Deviation report.
 9. Filled up data sheet containing
 - a. Designation
 - b. Fabric Material name and its composition with physical & chemical properties
 - c. Description
 - d. Weight
 - e. Thickness
 - f. Tensile strength Warp
 - g. Tensile strength Wept
 - h. Elongation Warp
 - i. Elongation Wept.
 - j. Temperature
 10. Separate General arrangement drawing for each tag nos of NMEJ during detailing
 - a. Elevation, plan and side view with necessary dimensions.
 - b. Inlet and outlet side frame / flange details
 - c. Type and arrangement of fabric belt
 - d. Flow liner details
 - e. Canopy details
 - f. split up details of frame and belt in case Expansion joint is shipped in number of parts.
 - g. All part / material list.
 - h. Transport clamp frame details.
 - i. Total weight of each joint
 - j. Break up weight details for steel, fabric portions.
 11. List of recommended spares for commissioning /maintenance / emergency (including joining kits).
 12. Typical Quality plan and O&M manual.
 13. Testing facility details and write up for the tests to be conducted on NMEJ.
 14. Proposed delivery schedules.
 15. Bidder to furnish the no. of man days required for installation of each tag no of NMEJs (TA/DA/Lodging shall be borne by the bidder) as per the scope given in clause no 1.1 and it's rate.
 16. Guarantee

10.0 SPECIAL REQUIREMENTS



SPECIFICATION FOR NON - METALLIC EXPANSION JOINTS

SPECN .NO
DU/Tuticorin-
FGD/NMEJ

PAGE
14 of 14

REV.No. : 01

- a) NMEJ will be fixed on to the Titanium Clad duct of 8mm Carbon steel and 2mm Titanium.
- b) Bidder to provide a separate drain arrangement for the acid condensate.
- c) Liner plate material shall be able to withstand acid conditions and further it shall be ensured that no acid penetration inside the non-metallic expansion joint.
- d) All flanges, counter flanges, seals, fasteners, gaskets for the completeness of scope of NMEJ is in bidder's scope.
- e) Material selected for Fabric and other material indicated is tentative, bidder to select material suitable to withstand acid resistance.
- f) Super seal in between cloth and duct flange, cloth and FRP flange as per bidder standard to be used.
- g) Complete NMEJ materials shall be suitable for acid corrosion.
- h) All galvanized items should have minimum 40 micron coating thickness
- i) Bidder to arrange all required tools for mounting fabric into the duct and FRP connection (like punching tool and Hot sealing tool etc.)

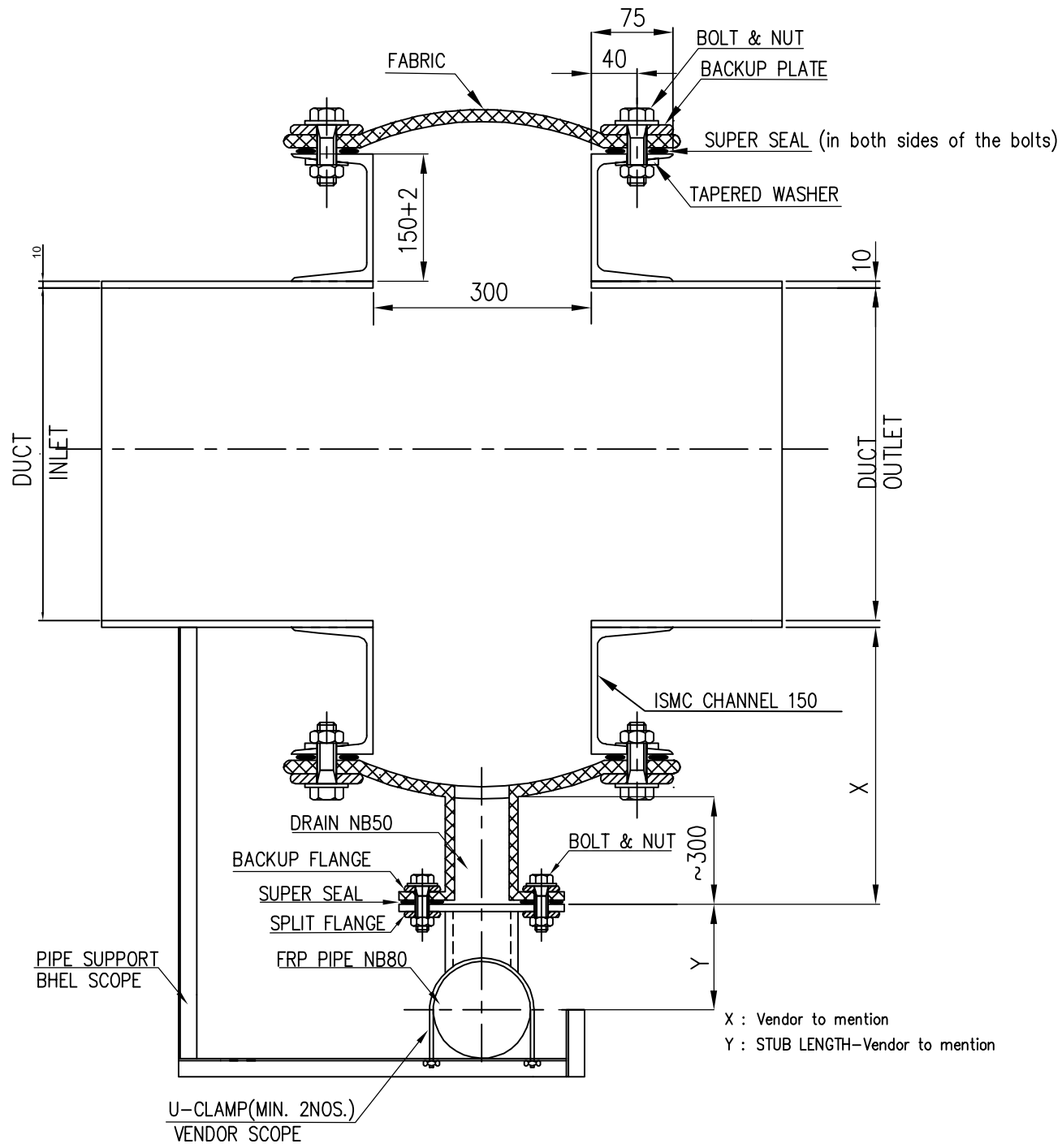
11.0 GENERAL DATA

- A) TYPE OF FUEL : COAL
B) TYPE OF GAS : ABSORBER OUTLET
C) INSTALLATION : OUTDOOR
D) DUCT CORNER : SQUARE
E) DUCT INSULATION : EXTERNAL
F) AMBIENT AIR (GUARANTEE) : 27°C,60% RH
G) AMBIENT AIR (DESIGN) : 45°C,60%RH

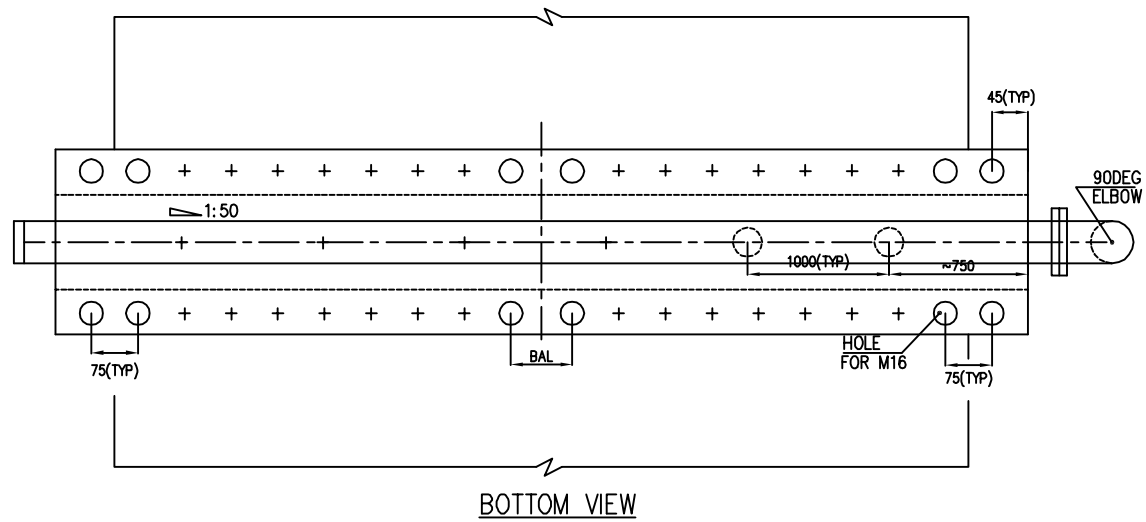
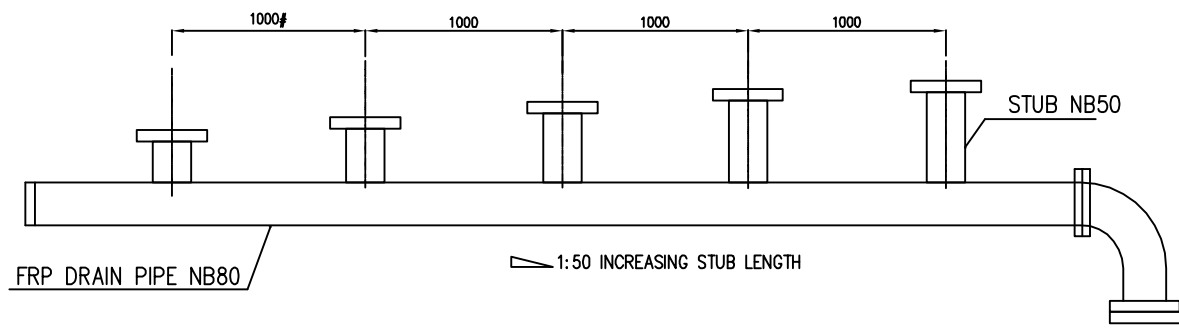
12.0 ANNEXURES

- 001-ANNEX-1 NMEJ ARRANGEMENT (**SK-NMEJ-001**)—1PAGE
002-ANNEX-2 NMEJ DESIGN INPUT (**SK-NMEJ-002**) ----1 PAGE
003-ANNEX-3 NMEJ SPLIT FRAME (**SK-NMEJ-003**) ----1 PAGE

ANNEX-1 NMEJ ARRANGEMENT



UNIT	NMEJ TAG NO.	DUCT INLET SIZE IN MM		DUCT OUTLET SIZE IN MM	
		DEPTH	WIDTH	DEPTH	WIDTH
UNIT -1	8207-NMEJ-001	10200	5100	10200	5100
UNIT -1	8207-NMEJ-002	10300	5100	10410	5210
UNIT -2	8208-NMEJ-001	10200	5100	10200	5100
UNIT -2	8208-NMEJ-002	10300	5100	10410	5210

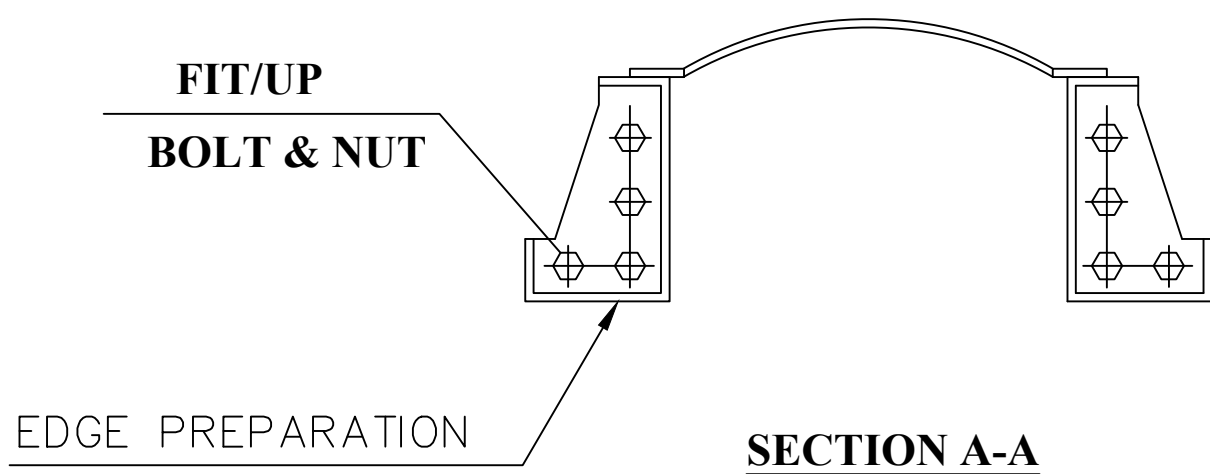
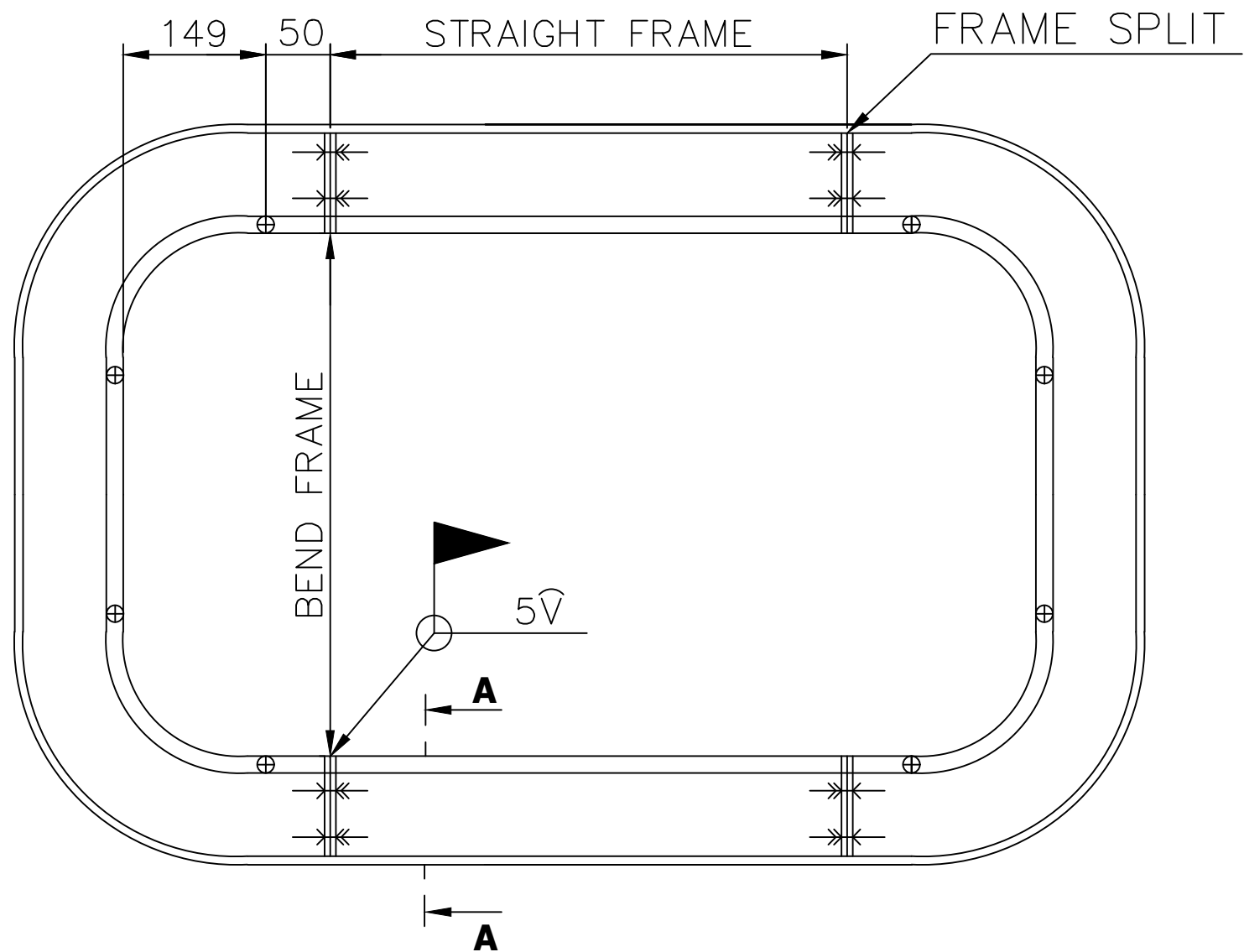


*-ALL FLANGES TO BE SUPPLIED WITH REQUIRED SEALANTS/GASKETS & FASTENERS
 #-DRAIN POINT LOCATION INDICATED IS TYPICAL

Annex-2 EXPANSION JOINT DESIGN INPUT, Doc.NO.SK-NMEJ-002	
Expansion Joint Tag Number	8207-NMEJ-001(Unit-1) 8207-NMEJ-002(Unit-1) 8208-NMEJ-001(Unit-2) 8208-NMEJ-002(Unit-2)
Total NMEJ Quantity Required for the project	4
Duct System	FGD Absorber Outlet to Chimney
Expansion Joint Location	After FGD Absorber
Connecting Duct Size(Inside Dimension) mm	Refer Annex-1 SK-NMEJ-001
NMEJ SIZE DETAILS	
Face to Face Dimension of NMEJ (breach Opening)(mm)	300 (Max.Length of NMEJ)
FLOW MEDIUM	
Medium	Ash Laden Gas
Chemical Composition:	
H2O (Vol. %)	12.54 11.35
SO2 (Vol. %)	0.0052 0.0055
SO3 (Vol. %)	0.0009 0.0009
CO2 (Vol. %)	14.33 14.62
O2 (Vol. %)	3.34 2.94
N2 (Vol. %)	69.78 71.09
Max.Dust Burden(mg/Nm3)	200
Max.Flow Velocity(m/s)	15
Condensate collection Flow Rate(kg/hr)	50
Water washing of Duct(Yes/No)	No
PRESSURE	
Design Pressure(mmwC)/Operating(mmwC)	±660/200
TEMPERATURE	
Design Temperature(Deg C)	70 to 150
ASH	
Ash Load to be Considered(in Metric Tons)	1/10 th of Duct Depth
MOVEMENT	
Axial (mm)	±50
Lateral(mm)	±30
Angular(Deg.)	±2
DUCT DETAILS	
Duct Plate Thickness(mm)	8mm Carbon Steel+2mm Titanium
Duct Plate Material	ASME SB265 Gr.2
Duct Insulation Thickness(mm)	To be Provided Later
Flange Drilling Details Ref.No.	Bidder to Provide
OTHER REQUIREMENTS	
Internal Flow Plate(Liner) Attachment Requirement	Required,Bidder to Provide
Condensate Drain Nozzle to be Provided	Required,Bidder to Provide



ANNEX-3 SUGGESTED ARRANGEMENT OF SPLIT FRAME NMEJ



PRE.	ROSHAN		DRG. NO.	REV
CHD & APPD	MRS		SK-NMEJ-003	