

VOLUME II

TECHNICAL SPECIFICATION

FOR

COUPLER PLATE, BOLTS, NUTS & WASHERS
OF CABLE TRAYS

SPECIFICATION NO: PE-TS-427-507-E021A

REVISION: 00



BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, UP (INDIA) – 201301

308763/2021/PS-PEM-EL



TECHNICAL SPECIFICATION FOR COUPLER PLATES, BOLTS, NUTS & WASHERS

SPECIFICATION NO. PE-TS-427-507-
E021A

REVISION 00

DATE: 27.05.2021

SHEET 1 OF 1

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COUPLER PLATES, BOLTS, NUTS
& WASHERS**

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VOLUME-II

SECTION I

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SECTION – I

SPECIFIC TECHNICAL REQUIREMENTS

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COMPLIANCE CERTIFICATE

The bidder shall confirm compliance to the following by signing/ stamping this compliance certificate and furnishing same with the offer.

1. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same
2. There are no deviation with respect to specification other than those furnished in the 'schedule of deviations'
3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
4. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in 'BOQ-Cum-Price schedule' of the specification shall not be considered (i.e., technical description & quantities as per the specification shall prevail).

BIDDER'S STAMP & SIGNATURE



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1.0 SCOPE

1.1 Manufacture, Inspection and Testing at Manufacturer's works, proper packing and delivery to site of coupler plates, nuts, bolts & washers conforming to this specification.

1.2 Technical requirements are indicated in Data Sheet-A & Section-II.

1.3 The stipulation of Data Sheet-A shall prevail in case of any conflict between the stipulations of Data Sheet-A, Section-I & Section-II.

2.0 BILL OF QUANTITIES

Quantity requirements shall be as per 'BOQ-cum-price schedule' as part of NIT.

3.0 SPECIFIC TECHNICAL REQUIREMENTS

S. No.	Reference clause No. of Section II (if any)	Specific Requirement/ Change
1	Sl. No. 3.1 & Quality Plan	Kindly note that only applicable points related to coupler plates, nuts, bolts & washers shall be applicable in enclosed QP PE-QP-999-507-E005, REV. 02.

4.0 DRAWINGS & DOCUMENTS TO BE SUBMITTED

4.1 Documents required along with Technical offer

Signed and Stamped copies of following documents: -

- Schedule of BOQ cum Price Schedule (Unpriced)
- Compliance certificate
- Schedule of deviations.

4.2 Documents required after award of LOI

Following documents/drawings shall be submitted after placement of order for BHEL & customer's approval:-

Sl. No.	Drawings/Document Description	Drawings / Document Number	Submission date by vendor
1	Technical Data Sheet	PE-V0-427-507-E001	Within one week of award of contract
2	GA Drg of Coupler Plates, nuts, bolts & washers	PE-V0-427-507-E002	Within one week of award of contract
3	Type test certificates	PE-V0-427-507-E003	Within one week of conduction of tests
4	Quality Plan	PE-V0-427-507-E901A	Within one week of award of contract

Note:-

- Document indicated at clause no. 4.2 above, shall be submitted through document management system (DMS).



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DATASHEET-A

1.0 APPLICABLE STANDARDS

- | | | |
|----|----------|--|
| a) | IS: 1079 | For hot rolled carbon steel sheet and strip. |
| b) | IS: 1730 | For dimensions for steel sheet and strip. |
| c) | IS: 1363 | Hexagon head bolts, screws and nuts. |
| d) | IS: 2629 | For hot dip galvanising of steel & surface pre treatment. |
| e) | IS: 2633 | For testing of uniformity of zinc coating. |
| f) | IS: 6745 | For determination of mass of zinc coating. |
| g) | IS: 1367 | Galvanised Coating on threaded Fasteners.
(Part-XIII) |
| h) | IS: 1852 | For Rolling and Cutting Tolerances of hot rolled steel products. |
| i) | IS: 9595 | For Thickness of Welding. |
| j) | IS: 4759 | For Hot Dip Zinc coating on structural steel and other allied products |

2.0 COUPLER PLATE

- | | | | |
|-----|------------------------|---|--|
| 2.1 | Material | : | Hot Rolled Mild Steel |
| 2.2 | Construction | : | Conforming to enclosed drawing |
| 2.3 | Thickness | : | 3.0mm |
| 2.4 | Tolerance in Thickness | : | As per IS: 1852 |
| 2.5 | Make | : | SAIL / TISCO / RINL / BHUSAN / JINDAL STEEL /
JINDAL ISPAT / ESSAR / LLOYD / IISCO /
Authorized re-rollers of SAIL |

2.6 Thickness of the finished product (coupler plate) shall not be less than 3.0 mm.

3.0 NUTS, BOLTS & WASHERS

- | | | | |
|-----|------------------|---|--------------------------------|
| 3.1 | Bolt | : | M8 |
| 3.2 | Nut | : | Suitable for M8 bolt |
| 3.3 | Washer Thickness | : | 2 mm |
| 3.4 | Construction | : | Conforming to enclosed drawing |

4.0 SURFACE TREATMENT

COUPLER PLATES:-

- | | | | |
|----|---------------------|---|------------------------------|
| a) | Pre-treatment | : | IS 2629 before galvanisation |
| b) | Type | : | Hot dip galvanisation |
| c) | Applicable Standard | : | IS 2629 |



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- d) Minimum thickness : 75 microns (minimum), 86 microns (average) for 3.0 mm thick product
- e) Min. weight of Zinc deposit : 610 grams per square meter for 3.0 mm thick product
- f) Tests for galvanizing : (i) Weight of Zinc Coating as per IS 6745.
(ii) Thickness of Zinc Coating as per IS 4759.
(iii) Uniformity of Zinc Coating as per IS 2633.
(iv) Adhesion Test as per IS 2629.

NUTS, BOLTS & WASHERS:-

Hot dip galvanized as per IS 1367 for sizes 12mm & above and electroplated/ electrogalvanized from sizes 12mm and below

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**TECHNICAL SPECIFICATION FOR
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SPECIFICATION NO. PE-TS-427-507-E021A

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SECTION II

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SECTION-II

STANDARD TECHNICAL REQUIREMENTS



TECHNICAL SPECIFICATION FOR COUPLER PLATES, BOLTS, NUTS & WASHERS

SPECIFICATION NO. PE-RC-999-507-E021A

VOLUME II

SECTION II

REVISION 01

DATE: 27.05.2021

Sheet 1 of 1

1.0 CODES & STANDARDS

- 1.1 The material shall comply with all currently applicable safety codes and statutory regulations of India as well as of the locality where the material is to be installed.
- 1.2 The design, material, construction, manufacture, inspection, testing and performance of Coupler Plates, nuts, bolts & washers shall conform to the latest revision of relevant standards and codes of practices as per Data Sheet-A
- 1.3 In case of conflict between the applicable reference standard and this specification, this specification shall govern.

2.0 TECHNICAL REQUIREMENTS

- 2.1 Technical particulars are specified in Data Sheet-A and drawings enclosed with this specification. Minor fabrication detail changes which do not affect the material /dimensional aspect of the equipment, shall be subject to BHEL/owner's approval without any commercial implication.

3.0 QUALITY ASSURANCE, TESTING AND INSPECTION

- 3.1 Bidder shall confirm compliance with BHEL'S standard Quality plan (PE-QP-999-507-E005, Rev-02) as attached with the specification. At contract stage, the successful bidder shall submit the QP for BHEL/ ultimate customer's approval. In case bidder has reference QP agreed with ultimate customer, same can be submitted for specific project after award of contract for BHEL/ ultimate customer's approval. There shall be no commercial implication to BHEL on account of minor changes in Quality plan during contract stage.
- 3.2 All materials shall be procured, manufactured, inspected and tested by vendor/ sub-vendor as per approved quality plan.
- 3.3 The supplier shall perform all tests necessary to ensure that the material and workmanship conform to the relevant standards and comply with the requirements of the specification. Charges for all these tests for all the equipment & components shall be deemed to be included in the bid price.

4.0 PACKING

- 4.1 The material shall be packed to ensure protection against damage during transit, storage for prolonged periods and handling.

		QUALITY PLAN		CUSTOMER :		PROJECT TITLE :		SPECIFICATION NO. :				
				BIDDER/ VENDOR :		STANDARD QP NO. : PE-QP-999-507-E005, REV. 02		SPECIFICATION TITLE:				
		SHEET 1 OF 3		SYSTEM CABLEING		ITEM : CABLE TRAYS & ACCESSORIES		DOC. NO. :				
SL. NO.	COMPONENT/OPERATION	CHARACTERISTIC CHECK	CAT.	TYPE/ METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY			REMARKS
									P	W	V	
1	2	3	4	5	6	7	8	9	10			11
1.0	RAW MATERIAL											
1.1	ROLLED SHEET	1.CHEM.& PHY. PROPERTIES	MA	VERIFICATION OF TC'S	100%	IS1079	IS1079	MILL TC	3/2	-	1/2	Steel shall be procured from SAIL/TISCO/RINL/BHUSAN/JINDAL STEEL/JINDAL ISPAT/ESSAR/ LLOYD/ IISCO/ authorised SAIL Re Rollers.
		2.DIMENSIONS	MA	MEASUREMENT	100%	IS-1730/ APPD. DATA SHEET	IS-1730/ APPD. DATA SHEET	QC RECORD	3/2	-	-	
		3.SURFACE FINISH	MA	VISUAL	100%	IS-1079	IS-1079	QC RECORD	3/2	-	-	
1.2	ZINC	CHEM.COMP.	MA	CHEM TEST	EACH HEAT	IS-209	IS-209	TC	3/2	-	1/2	
2.0	IN-PROCESS											
2.1	FABRICATION	1.DIMENSIONS	MA	MEASUREMENT	100%	APPD.DRG.	APPD.DRG.	QC RECORD	2	-	1	Welding is to be done by qualified welders in accordance with ASME SEC. IX article III. WPS , PQR & WPQ to be reviewed during inspection.
		2.WELDING QUALITY	MA	VISUAL	100%	GOOD WELDING PRACTICE	FREE FROM DEFECTS & SLAG	QC RECORD	2	-	1	
		3.SURFACE FINISH	MA	VISUAL	100%	FREE FROM DEFECTS & SLAG	FREE FROM DEFECTS & SLAG	QC RECORD	2	-	1	
2.2	SURFACE PREPARATION	1.CLEANING PICKLING & RINSING & FLUXING	MA	VISUAL	PERIODIC IN EACH SHIFT	IS:2629	IS:2629	QC RECORD	2	-	-	
		2. SURFACE QUALITY	MA	VISUAL	100%	IS:2629	IS:2629	QC RECORD	2	-	-	
BHEL			PARTICULARS		BIDDER/VENDOR							
			NAME									
			SIGNATURE									
			DATE				BIDDER'S/VENDORS COMPANY SEAL					
LEGEND : 1 - BHEL/ CUSTOMER 2 - VENDOR 3 - SUB- VENDOR P - PERFORM W - WITNESS V - VERIFICATION												

		QUALITY PLAN		CUSTOMER :		PROJECT TITLE :		SPECIFICATION NO. :				
				BIDDER/ : VENDOR		STANDARD QP NO. : PE-QP-999-507-E005, REV. 02		SPECIFICATION TITLE:				
		SHEET 2 OF 3		SYSTEM CABLEING		ITEM : CABLE TRAYS & ACCESSORIES		DOC. NO. :				
SL. NO.	COMPONENT/OPERATION	CHARACTERISTIC CHECK	CAT.	TYPE/METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY			REMARKS
1	2	3	4	5	6	7	8	9	P	W	V	11
2.3	GALVANISING	1.TEMPERATURE OF ZINC BATH	MA	TEMPERATURE INDICATOR	CONTINUOUS	IS-2629	IS-2629	QC RECORD	2/3	-	-	Galvanization is to be done at galvanisation plant listed in annexure-2 to quality plan.
		2.DROSS	MA	VISUAL	PERIODIC	IS 2629	IS 2629	QC RECORD	2/3	-	-	
		3.RATE OF IMMERSION	MA	VISUAL	100%	IS 2629/ MFR'S PRACTICE	IS2629/ MFR'S PRACTICE	QC RECORD	2/3	-	2	
		4.SURFACE QUALITY	MA	VISUAL	100%	IS 2629	FREE FROM BURRS ROUGHNESS, SLAG FLUX. STAIN. ETC.	QC RECORD	2/3	-	-	
3.0	FINISHED ITEMS											Overall thickness of finished product shall not be less than the thickness of cable tray & accessories defined in technical datasheet. Following shall be engraved/ punched on each standard length of cable tray at the center of both sides of runner:'PEM' (length of letter 90mm & height 30mm). Fasteners shall be of good quality as per IS 1363 600MM wide cable tray to be tested. Maximum deflection shall not exceed 7MM on mid span on uniform loading of 100KG/M.
3.1	(CABLE TRAY, ACCESSORIES & HARDWARES)	1.DIMENSIONS	MA	MEASUREMENT	IS-2500 (PART 1) LEVEL S-4	APPD. DRG	APPD. DRG	INSP.REPORT	2	1	-	
		2.SURFACE FINISH	MA	VISUAL	IS-2500 (PART 1) LEVEL S-4	APPD. DRG	FREE FROM BURRS, SLAG, ROUGHNESS, FLUX. STAIN.ETC.	INSP.REPORT	2	1	-	
		3.RIGIDITY (FOR TRAYS)	MA	DEFLECTION TEST	2 No./ LOT/TYPE	APPD. DRG	APPD. DRG	INSP.REPORT	2	1	-	
		4.MASS OF ZINC COATING	MA	CHEM. TEST	IS-4759	IS-6745	610 gms/ Sq m (for 2.0mm thick product) 460 gms/ Sq m (for 1.6 mm thick product)	INSP.REPORT	2	1	-	
		5.UNIFORMITY OF ZINC COATING	MA	CHEM. TEST	IS-4759	IS-2633	IS-2633	INSP.REPORT	2	1	-	
		6.THICKNESS OF ZINC COATING	MA	ELCOMETER	IS-4759	75 MICRONS (MINIMUM), 86 MICRONS (AVERAGE) for 2.0mm thick product 55 MICRONS (MINIMUM), 65 MICRONS (AVERAGE) for 1.6mm thick product	75 MICRONS (MINIMUM), 86 MICRONS (AVERAGE) for 2.0mm thick product 55 MICRONS (MINIMUM), 65 MICRONS (AVERAGE) for 1.6mm thick product	INSP.REPORT	2	1	-	
		7.ADHESION	MA	MECH.TEST	IS-4759	IS-2629	IS-2629	INSP.REPORT	2	1	-	
BHEL			PARTICULARS		BIDDER/VENDOR							
			NAME									
			SIGNATURE									
			DATE				BIDDER'S/VENDORS COMPANY SEAL					
LEGEND : 1 - BHEL/ CUSTOMER 2 - VENDOR 3 - SUB- VENDOR P - PERFORM W - WITNESS V - VERIFICATION												

		QUALITY PLAN		CUSTOMER :		PROJECT TITLE :		SPECIFICATION NO. :				
				BIDDER/ : VENDOR		STANDARD QP NO. : PE-QP-999-507-E005, REV. 02		SPECIFICATION TITLE:				
		SHEET 3 OF 3		SYSTEM CABLING		ITEM : CABLE TRAYS & ACCESSORIES		DOC. NO. :				
SL. NO.	COMPONENT/OPERATION	CHARACTERISTIC CHECK	CAT.	TYPE/METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORM	FORMAT OF RECORD	AGENCY			REMARKS
1	2	3	4	5	6	7	8	9	P	W	V	11
		8. COUPLER PLATE	MA	VISUAL	100%	BHEL APPD. DOCUMENT	BHEL APPD. DOCUMENT	INSP.REPORT	2	1	-	INSPECTOR TO MENTION THE TOTAL NUMBER OF GUNNY BAGS/BUNDLES OF COUPLER PLATES,NUTS, BOLTS & WASHER IN THE INSPECTION REPORT. FURTHER MANUFACTURER SHALL ATTACH THE DETAIL OF TOTAL NUMBER OF GUNNY BAGS/BUNDLES OF THE RESPECTIVE ITEMS WITH PACKING LIST.
		9. NUT & BOLT	MA	VISUAL	100%	BHEL APPD. DOCUMENT	BHEL APPD. DOCUMENT	INSP.REPORT	2	1	-	
		10. WASHER	MA	VISUAL	100%	BHEL APPD. DOCUMENT	BHEL APPD. DOCUMENT	INSP.REPORT	2	1	-	
BHEL			PARTICULARS		BIDDER/VENDOR		BIDDER'S/VENDORS COMPANY SEAL					
			NAME									
			SIGNATURE									
			DATE									
LEGEND : 1 - BHEL/ CUSTOMER 2 - VENDOR 3 - SUB- VENDOR P - PERFORM W - WITNESS V - VERIFICATION												

ANNEXURE-1**INSTRUCTIONS FOR QUALITY PLAN**

The Quality Plan shall include all the Quality Control Measures and Checks adopted by the Vendor to ensure that the material/component/assembly/services supplied by him meet/will meet the requirements as per specifications and good practices. They shall include all stages of operation such as materials, processes, manufacture, assembly, packing and despatch. The following guide lines may be noted:

Column 1-	Serial Number
Column 2-	Component/Operation- The component and/or operation being checked shall be given here.
Column 3-	Characteristics check- The characteristics being checked shall be given here, e.g., chemical composition, mechanical properties, leak tightness, surface defects etc..
Column 4-	Category -'CR' stands for critical characteristic - affecting safety of equipment and personnel 'MA' stands for major Characteristic - affecting safety of equipment and personnel 'MI' stands for minor characteristic - affecting appearance etc.
Column 5-	Type/Method of check e.g. chemical analysis tensile testing, hydraulic test, visual examination radiography etc.
Column 6-	Extent of check, such as, 100, 10, 1 percent etc.
Column 7-	Reference Documents - Documents, such as technical specification, drawings, standard specifications (IS, BS ETC.) procedure, etc. according to which check is done.
Column 8-	Acceptance Norms - Standards etc. according to which acceptability or otherwise of the characteristics being checked is decided.
Column 9-	Format of Record - Formats, log sheets, reports, etc. in which the observations are recorded. Standard log sheets, reports, formats etc. of the Vendors shall be numbered and such reference numbers shall be included here.
Column 10-	Agency - The agency which performs the test/instruction shall be written in sub-column 'W' The agency which verifies test certificates/inspection records and carries out audit check of the components/operation shall be written in sub-column 'V'
	The agencies are codified as 1,2 & 3
	'1' stands for (BHEL)
	'1' * means the operation shall be cleared by BHEL before the start of the next operation.
	'2' Stands for Vendor
	'3' stands for sub-Vendor of the Vendor and so on.
Example :	
Entry	'3' in column 'P' means test./inspection to be performed by sub-Vendor's QC
Entry	'2' in column 'W' means test./inspection to be witnessed by Vendor's QC
Entry	'1' in column 'V' means verification shall be done by BHEL and next stage to be started only after the hold point is cleared by BHEL
Column11-	Remarks - Any special remarks shall be given here.

NOTES :

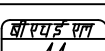
1. In absence of correlation with the test certificate(s) (e.g. material identification) samples shall be drawn by BHEL and all tests as per relevant specifications shall be carried out in their presence or in recognized Government Laboratory.
2. When materials and components are initially identified and stamped by BHEL QS engineer, the identification marks shall be preserved till despatch. Wherever this is not possible, the identification mark shall be transferred to the components in the presence of BHEL QS Engineer unless otherwise agreed.
3. For castings and forgings integral test specimens shall be provided, When this is not possible for casting, they shall be poured in the presence of BHEL QS Engineer unless otherwise, if witnessing of test by BHEL is called for.
4. When welders qualified by reputed inspection agencies or statutory bodies are not available, qualification tests shall be conducted in the presence of BHEL QS Engineer.
5. This Quality Plan is liable to be modified as per the requirements of approved drawings and changes in technical specifications/drawings. If there are contradictions in respect of column 7 & 8 between this Quality Plan and the approved drawings specifications, the latter shall prevail.
6. Wherever inspection by BHELs Purchaser/Third Party/Statutory authorities are mandatory, this shall be complied with.
7. Inspection reports, log sheets, test reports/certificate. etc. shall be furnished to BHEL at the appropriate stages or at the time of final inspection, as required.
8. This Quality Plan is also applicable to spares, if any, under scope of supply of Vendor.
9. The quality plan shall be submitted in minimum 4 copies with a soft copy of the same or in line with contract requirements.

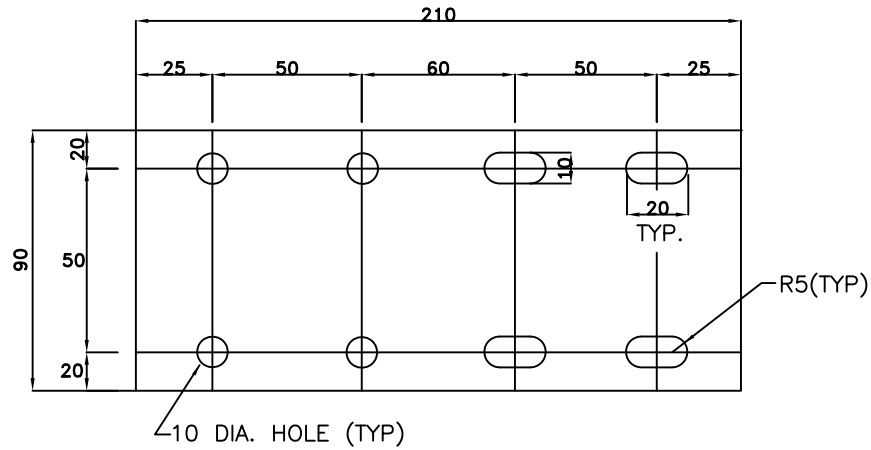
ANNEXURE-2 to Quality Plan**LIST OF NTPC APPROVED GALVANIZERS (FOR NTPC PROJECTS)**

S. NO.	ITEM	VENDOR NAME
1	Galvanising	MJ Engg., Delhi
2	Galvanising	Jamna Metal, Delhi
3	Galvanising	A.V. Engg., Kolkata
4	Galvanising	Inar Profiles, Vishakapatnam
5	Galvanising	Anand Udyog, Mumbai
6	Galvanising	Techno Engg., Chandigarh
7	Galvanising	Steelite Engg., Mumbai
8	Galvanising	National Galvanizer, Kolkata
9	Galvanising	Unistar Galvanizer, Kolkata
10	Galvanising	B.P. Projects, Kolkata
11	Galvanising	Bajaj, Pune
12	Galvanising	Electrocare Industries, Mumbai
13	Galvanising	B.G. Shirke, Pune
14	Galvanising	Gurpreet Galvanizer, Hyderabad
15	Galvanising	Sigma, Mumbai
16	Galvanising	Radhakrishnan Shetty, Chennai
17	Galvanising	Karamtara, Mumbai
18	Galvanising	Poona Galvanizers, Pune
19	Galvanising	Neha Galvanizer, Kolkata
20	Galvanising	Unitech Galvanizers, Hoogly
21	Galvanising	DMP projects, Kolkata
22	Galvanising	Patny Systems, Medhak

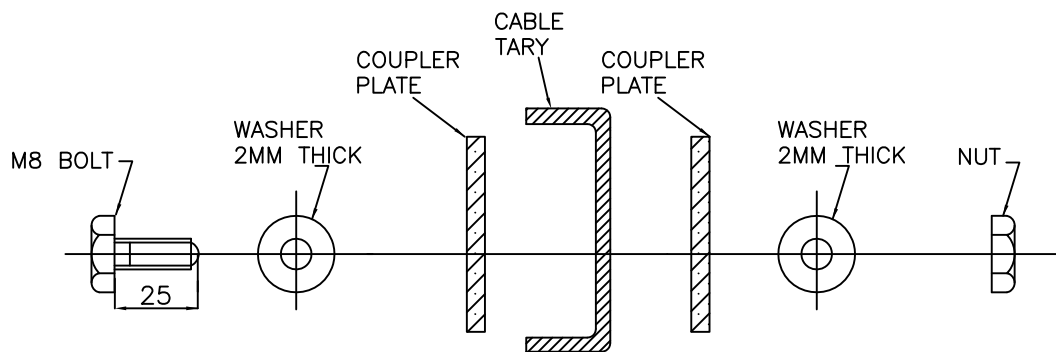
NOTES:

- 1** *ANY CHANGE IN THE ABOVE LIST SHALL BE INFORMED AT THE TIME OF SPECIFIC PROJECT REQUIREMENT AND NO COMMERCIAL IMPLICATION SHALL BE ALLOWED ON THIS ACCOUNT.*
- 2** *IT SHALL BE THE RESPONSIBILITY OF THE VENDOR TO GET THE MATERIAL GALVANIZED FROM THE ABOVE LIST WITHOUT ANY COMMERCIAL IMPLICATION TO BHEL.*

CUSTOMER							
PROJECT							
JOB NO.	BHARAT HEAVY ELECTRICALS LIMITED POWER SECTOR PROJECT ENGINEERING MANAGEMENT NOIDA(U.P) INDIA	DPT CODE-E	DRN	NAME	SIGN	DATE	
			DSN	AnA			
			CHD	AS			
			APP	SL			
		DWG. no. PE-DG-999-507-E005A					
SHT. 01 OF 03					REV. 0		



SIDE COUPLER PLATE FOR
LADDER/PERFORATED TYPE TRAYS



SEQUENCE OF M8 BOLT, WASHER, NUT, COUPLER PLATE & CABLE TRAY
FOR TYPICAL CABLE TRAY JOINT

FOR GENERAL NOTES REFER SHEET 03 OF 03



TYPICAL DETAILS OF COUPLER PLATES,
BOLTS, NUTS & WASHERS

DWG. NO.

PE-DG-999-507-E005A

SHT. 02 OF 03

REV. 0

NOTES:—

1. ALL COUPLER PLATE SHALL BE MADE OF 3mm HOT ROLLED M.S. SHEET CONFIRMING TO IS:1079.
2. THE COUPLER PLATES SHALL BE HOT DIP GALVANISED AS PER IS 2629. THE MASS OF ZINC COATING SHALL BE 610 gm/m AND THICKNESS SHALL BE 75 MICRONS (MINIMUM).
3. ALL NUTS, BOLTS, WASHERS ETC., SHALL BE HOT DIP GALVANISED AS PER IS 1367 FOR SIZES ABOVE 12MM AND ELECTROPLATED/ELECTROGALVANISED FROM SIZE BELOW 12MM.
4. ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE.
5. MAKE OF ALL ITEMS SHALL BE AS PER BHEL/CUSTOMER APPROVAL.



TYPICAL DETAILS OF COUPLER PLATES,
BOLTS, NUTS & WASHERS

DWG. NO.

PE-DG-999-507-E005A

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