TPSODL	TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
V	TECHNICAL SPECIFICATION	
Document Title	SPECIFICATION FOR GALVANISED IRON (GI) FLAT 25X4	
Document No.	ENG-HV-GI Flat 25X4 Eff. Date:22-03-2022	
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Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

1. SCOPE

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Ranjan Kumar Sahoo	Priya Kumar Sharma	Mahendra Kumar Pandey

1.0	SCOPE	This specification covers technical requirements of design, manufacturing, testing, Inspection, Supply & transportation of Hot dip Galvanised Iron (GI) Flat 25X4 MM at TPSODL stores/site.	
2.0	APPLICABLE STANDARDS	 The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International Standards and shall confirm to the regulations of the local Statutory authorities: IS 1239 (Part1): Specification for Steel Tubes, Tubulars & other wrought steel fittings. IS 1239 (Part2): Specification for Steel Tubes, Tubulars & other steel fittings. IS 228: Method for chemical analysis of steels. IS 4736 : Specification for Hot dip zinc coating on mild steel tubes IS 4759: Specification for Hot dip zinc coating on structural steel and other allied products. IS 1887: General requirements for the supply of metallurgical materials. IS 1608: Mechanical testing of metals-Tensile Strength. IS 4740: Code of practice for packaging of steel tubes. IS 10748: Hot rolled steel strip for welded tubes & pipes. IS 12278: Method for ring tensile test on metallic tubes. IS 1367: Technical supply conditions for threaded steel fastners. IS 14394: Industrial fastners-Nuts of product GradeC- Hot Dip Galvanised. IS 2016:-1997: Specification for plain washers. IS 1730-1989: Steel plates, sheets, strips and flats for structural And general engineering purpose-Dimensions IS 2629(1966)- Recommended practice for hot dip galvanized of Iron Earthing Strips IS: 2633(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. IS: 3233(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. IS: 3258(1969)- Specification for hot dip galvanized coating on fastness I IS: 3250(1968)- Specification for hot dip galvanized coating on fastness I IS: 3250(1969)- Specification for hot dip galvanized coating on fastness I IS: 3250(1969)- Specification for hot dip galvanized coating on fastness I IS: 3203-	
3.0	CLIMATIC CONDITIONS OF INSTALLATION	The service conditions shall be as follows: 1. Maximum altitude above sea level 1,000m 2. Maximum ambient air temperature 50°C 3. Maximum daily average ambient air temperature 35°C	

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II SYL	BERHAMPUR TECHNICAL SPECIFICATION	
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	 acceleration of 0.3g 10. Earthquakes of an intensity in veracceleration of 0.15g (g being acceleration due to gravity) 11. Wind velocity: 300 km/hr, 200 km/hr an Environmentally, some of the regions, whe areas, subject to high relative humidity, wh winds will frequently be salt laden. On condensation may create pollution condition in heavily industrial polluted areas. Therefore, Outdoor material and equipme in exposed, heavily polluted, salty, corrosive 	m 120 izontal direction - equivalent to seismic ertical direction - equivalent to seismic ad 160 km/hr. ere the work will take place includes coastal nich can give rise to condensation. Onshore occasions, the combination of salt and ons for outdoor insulators. Some places are nt shall be designed and protected for use <i>i</i> / <i>e</i> and humid coastal atmosphere es shall be suitable to withstand seismic
	MATERIAL Supplier has to purchase raw mater	rials (MS Flat) as per relevant IS at his own
	cost.	
	The zinc required for galvanizing s confirm to IS and its latest amendment	hall be quality Zn-98 Zinc grade & shall ents.
	commissioning of work, sufficient quality for galvanizing. The Suppl period with the supply of zinc. TPS	arrangement for procurement before the quantity of electrolytic zinc of proper lier shall however not link the delivery GODL is at liberty to have sample of zinc at his own past and reject the particular

		supply, is found below standard.
		All raw materials required for galvanizing etc. and for complete execution of work shall be stocked in adequate quantities by the Supplier to ensure that the progress of work is not hampered.
4.0	GENERAL TECHNICAL REQUIREMENTS	GALVANISING
		Fully galvanized Iron flat shall be used. Galvanized Iron flats shall confirm to relevant IS and its latest amendment. The zinc deposition should not be less than 705 grams/meter square of the galvanized surface area of the MS Flat.
		All galvanized materials shall withstand test as per IS: 2633 (1972) and latest IS and its latest amendment. The weight of zinc coating shall determine as per the method stipulated in IS: 2633(1964) and latest IS and its latest amendment.

used and to test in any laboratory at his own cost and reject the particular

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5.0	GENERAL CONSTRUCTION	GI Flat intended for different use in electricity distribution utility. The zinc coating shall be uniform. The materials shall be strictly from approved vendors' i.e. SAIL, TATA Steel, ESSAR, JSW Steel and TATA steel BSL. Documentary evidence certifying the raw material lifted from the approved vendor, which should not be less than the ordered quantity. Similarly the zinc for galvanization shall be procured from Hindustan zinc LTD. or Vedanta LTD. And the firm shall submit the documentary evidence certifying not less than the ordered quantity of zinc lifted from the approved vendor. The hot dip galvanization shall be done only after the all fabrication and welding done. The nut bolt, & washers provided shall be as per relevant IS.	
6.0	NAME PLATE AND MARKING	The body of the device shall be appropriately marked with "PROPERTY OF TPSODL" and the RC /RO no. at suitable location such that it is permanent and does not harm the body of the device.	
7.0	TESTS	All routine, acceptance & type tests shall be carried out in accordance with the relevant IS.	
7.i)	TYPE TEST	 The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment) 1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 & 14.1.1) Percentage of Elongation. Tensile strength. 2) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1) 3) Chemical composition. (As per 1239 Part-1: 2004 or Latest Amendment clause no.6.1.1) 	
7.ii)	ROUTINE/ ACCEPTANCE TEST	 The following tests shall be got conducted in presence of TPSODL representative as per IS: 1239 Part-1: 2004 (Latest Amendment) on the samples taken from the offered lot material for the purpose of acceptance of that lot of material. 1) Dimension of GI Flat. (As per IS 1239 Part-1: 2004 clause No.9.1 a&b)-Test shall be performed. 2) Chemical composition (Manufacturer's Test Certificate for raw material-Document Review only.) 3) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1)-Test shall be performed. 4) Test for mechanical properties (Manufacturer's Test Certificate for raw material-Document Review only.) 5) Galvanizing/Electroplating test 6) Visual Inspection test to confirm products free from any defects 	
8.0	TYPE TEST CERTIFICATES	The bidder shall furnish the type test certificates as mentioned as above as per the corresponding standards, if asked for by TPSODL. All type tests shall be conducted from NABL accredited Lab as per the relevant standards during the period not	

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12.0	PACKING	Bidder shall ensure that the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.	
11.0	GUARANTEE	Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of 12 months from the date of commissioning or 18 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be. Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.	
10.0	INSPECTION AFTER RECEIPT AT STORES	The material received at TPSODL store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to each QA and Plant Engineering group.	
9.0	PRE DISPATCH INSPECTION	The Material shall be subject to inspection by a duly authorized representative of the TPSODL. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPSODL's representatives at all times when the work is in progress. Inspection by the TPSODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPSODL. The pre-dispatch inspection shall be carried out as per annexure-IV Following documents shall be sent along with material a) Test reports b) MDCC issued by TPSODL c) Invoice in duplicate d) Packing list e) Drawings & catalogue f) Guarantee / Warrantee card g) Delivery Challan h) Other Documents (as applicable)	
		exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPSODL.	



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13.0	TENDER SAMPLE	Samples to be provided as required to TPSODL Engineering Dept.	
14.0	TRAINING	Not Applicable	
15.0	QUALITY CONTROL	The bidder shall have a prove track of not less than 10 years in GI Flat in manufacturing and servicing in national or international market. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.	
16.0	MINIMUM TESTING FACILITIES	Bidder shall have adequate in house testing facilities for carrying out all routine tests & acceptance tests as per relevant Indian standards.	
17.0	MANUFACTURING ACTIVITIES	The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.	
18.0	SPARES ACCESSORIES AND TOOLS	To be provided by BA	
19.0	DRAWINGS AND DOCUMENTS	 Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication. Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid: Completely filled in Technical Particulars along with Size and weight/sq.m of G.I. Flat, Standard Length, Galvanization Process, Galvanization thickness General description of the equipment and all components including brochures. Bill of Material Type test Certificates Experience List. 	
		for the final approval of the same to the purchaser.	



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		SI. No	Description	For Approval	For Review Information	Final Submission
		1	General Technical Parameters			\checkmark
		2	Manual/Catalogues/drawings for all components.		\checkmark	
		3	Technical details and test certificates of the component.		\checkmark	\checkmark
		4	Instructions for use			
		5	Transport/shipping dimension drawing		\checkmark	\checkmark
		6	QA & QC Plan			
		7	Routine, Acceptance and Type test Certificates		\checkmark	
		All the	Documents and Drawings shall b	be in English L	anguage.	
20.0	GUARANTEED TECHNICAL PARTICULARS	Clause	e wise compliance shall be provid	ed by bidders		

All deviations from this specification Clause in this schedule. Unless spe		(TO BE ENCLOSED WITH THE BID) from this specification shall be set out by the Bidders, clause by schedule. Unless specifically mentioned in this Schedule, the e deemed to confirm the TPSODL's specifications:		
		Details of deviation with justifications		
		We confirm tha Seal of the Con		tions apart from those detailed above.
				Signature Designation

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1.0	SCOPE	This specification covers technical requirements of design, manufacturing, testing, Inspection, Supply & transportation of Hot dip Galvanised Iron (GI) Flat 25X6 MM at TPSODL stores/site.	
2.0	APPLICABLE STANDARDS	 The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International Standards and shall confirm to the regulations of the local Statutory authorities: IS 1239 (Part1): Specification for Steel Tubes, Tubulars & other wrought steel fittings. IS 1239 (Part2): Specification for Steel Tubes, Tubulars & other steel fittings. IS 228: Method for chemical analysis of steels. IS 4736 : Specification for Hot dip zinc coating on mild steel tubes IS 4759: Specification for Hot dip zinc coating on structural steel and other allied products. IS 1887: General requirements for the supply of metallurgical materials. IS 1608: Mechanical testing of metals-Tensile Strength. IS 4740: Code of practice for packaging of steel tubes. IS 10748: Hot rolled steel strip for welded tubes & pipes. IS 12278: Method for ring tensile test on metallic tubes. IS 1367: Technical supply conditions for threaded steel fastners. IS 14394: Industrial fastners-Nuts of product GradeC- Hot Dip Galvanised. IS 2016:-1997: Specification for plain washers. IS 1730-1989: Steel plates, sheets, strips and flats for structural And general engineering purpose-Dimensions IS 2629(1966)- Recommended practice for hot dip galvanized of Iron Earthing Strips IS: 2633(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. IS: 323(1969)- Specification for hot dip galvanized coating on fastness I IS: 3258(1969)- Specification for hot dip galvanized coating on fastness I IS: 3259(1968)- Specification for hot dip galvanized coating on fastness I IS: 3259(1968)- Specification for hot dip galvanized coating on fastness I IS: 3259(1968)- Specification for hot dip galvanized coating on fastness I IS: 3259	
3.0	CLIMATIC CONDITIONS OF INSTALLATION	The service conditions shall be as follows: 1. Maximum altitude above sea level 1,000m 2. Maximum ambient air temperature 50°C 3. Maximum daily average ambient air temperature 35°C	

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	acceleration of 0.3g 10. Earthquakes of an intensity in ver- acceleration of 0.15g (g being acceleration due to gravity) 11 .Wind velocity: 300 km/hr, 200 km/hr ar Environmentally, some of the regions, whe areas, subject to high relative humidity, wh winds will frequently be salt laden. On condensation may create pollution condition in heavily industrial polluted areas. Therefore, Outdoor material and equipment in exposed, heavily polluted, salty, corrosive	m 120 izontal direction - equivalent to seismic ertical direction - equivalent to seismic nd 160 km/hr. ere the work will take place includes coastal nich can give rise to condensation. Onshore occasions, the combination of salt and ons for outdoor insulators. Some places are ent shall be designed and protected for use ve and humid coastal atmosphere ies shall be suitable to withstand seismic		
	MATERIAL			
	Supplier has to purchase raw mater cost.	rials (MS Flat) as per relevant IS at his own		
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All raw materials required for galvanizing etc. and for complete execution of work shall be stocked in adequate quantities by the Supplier to ensure that the progress of work is not hampered.

GENERAL TECHNICAL 4.0 REQUIREMENTS

GALVANISING

Fully galvanized Iron flat shall be used. Galvanized Iron flats shall confirm to relevant IS and its latest amendment. The zinc deposition should not be less than 705 grams/meter square of the galvanized surface area of the MS Flat.

All galvanized materials shall withstand test as per IS: 2633 (1972) and latest IS and its latest amendment. The weight of zinc coating shall determine as per the method stipulated in IS: 2633(1964) and latest IS and its latest amendment.

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5.0	GENERAL CONSTRUCTION	GI Flat intended for different use in electricity distribution utility. The zinc coating shall be uniform. The materials shall be strictly from approved vendors' i.e. SAIL, TATA Steel, ESSAR, JSW Steel and TATA steel BSL. Documentary evidence certifying the raw material lifted from the approved vendor, which should not be less than the ordered quantity. Similarly the zinc for galvanization shall be procured from Hindustan zinc LTD. or Vedanta LTD. And the firm shall submit the documentary evidence certifying not less than the ordered quantity of zinc lifted from the approved vendor. The hot dip galvanization shall be done only after the all fabrication and welding done. The nut bolt, & washers provided shall be as per relevant IS.	
6.0	NAME PLATE AND MARKING	The body of the device shall be appropriately marked with "PROPERTY OF TPSODL" and the RC /RO no. at suitable location such that it is permanent and does not harm the body of the device.	
7.0	TESTS	All routine, acceptance & type tests shall be carried out in accordance with the relevant IS.	
7.i)	TYPE TEST	 The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment) 1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 & 14.1.1) Percentage of Elongation. Tensile strength. 2) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1) 3) Chemical composition. (As per 1239 Part-1: 2004 or Latest Amendment clause no.6.1.1) 	
7.ii)	ROUTINE/ ACCEPTANCE TEST	 The following tests shall be got conducted in presence of TPSODL representative as per IS: 1239 Part-1: 2004 (Latest Amendment) on the samples taken from the offered lot material for the purpose of acceptance of that lot of material. 1) Dimension of GI Flat. (As per IS 1239 Part-1: 2004 clause No.9.1 a&b)-Test shall be performed. 2) Chemical composition (Manufacturer's Test Certificate for raw material-Document Review only.) 3) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1)-Test shall be performed. 4) Test for mechanical properties (Manufacturer's Test Certificate for raw material-Document Review only.) 5) Galvanizing/Electroplating test 6) Visual Inspection test to confirm products free from any defects 	
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12.0	PACKING	"Security cum Performance Deposit" as the case may be. Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser. Bidder shall ensure that the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from	
11.0	GUARANTEE	Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of 12 months from the date of commissioning or 18 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the	
10.0	INSPECTION AFTER RECEIPT AT STORES	The material received at TPSODL store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to each QA and Plant Engineering group.	
9.0	PRE DISPATCH INSPECTION	 TPSODL. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPSODL's representatives at all times when the work is in progress. Inspection by the TPSODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPSODL. The pre-dispatch inspection shall be carried out as per annexure-IV Following documents shall be sent along with material a) Test reports b) MDCC issued by TPSODL c) Invoice in duplicate d) Packing list e) Drawings & catalogue f) Guarantee / Warrantee card g) Delivery Challan h) Other Documents (as applicable) 	
		The Material shall be subject to inspection by a duly authorized representative of the	
		exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPSODL.	



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Priya Kumar Sharma	Mahendra Kumar Pandey	
	SPECIFICATION FOR GALVANISED IRON (GI) FLAT 2 ENG-HV-GI Flat 25X6 00 Reviewed By	

19.0 Should be followed for fabrication. Should be followed for fabrication. Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid: 1. Completely filled in Technical Particulars along with Size and weight/sq.m of G.I. Flat, Standard Length, Galvanization Process, Galvanization thickness				
15.0 QUALITY CONTROL The bidder shall have a prove track of not less than 10 years in GI Flat in manufacturing and servicing in national or international market. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections. 16.0 MINIMUM TESTING FACILITIES Bidder shall have adequate in house testing facilities for carrying out all routine tests & acceptance tests as per relevant Indian standards. 17.0 MANUFACTURING ACTIVITIES The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order. 18.0 SPARES ACCESSORIES AND TOOLS To be provided by BA 19.0 DRAWINGS AND DOCUMENTS Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication. 19.0 DRAWINGS AND DOCUMENTS 2. General description of the equipment and all components including brochures. 19.0 Constructional drawings are attache	13.0	TENDER SAMPLE	Samples to be provided as required to TPSODL Engineering Dept.	
15.0 QUALITY CONTROL manufacturing and servicing in national or international market. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of inspection, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections. 16.0 MINIMUM TESTING FACILITIES Bidder shall have adequate in house testing facilities for carrying out all routine tests & acceptance tests as per relevant Indian standards. 17.0 MANUFACTURING ACTIVITIES The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order. 18.0 SPARES ACCESSORIES AND TOOLS To be provided by BA 19.0 DRAWINGS AND DOCUMENTS Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication. 19.0 DRAWINGS AND DOCUMENTS 2. General description of the equipment and all components including brochures. 19.0 DRAWINGS AND DOCUMENTS 2. General description of the equipment and all components including brochures. <th>14.0</th> <th>TRAINING</th> <th colspan="2">Not Applicable</th>	14.0	TRAINING	Not Applicable	
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19.0 DRAWINGS AND DOCUMENTS Should be followed for fabrication. Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid: 1. Completely filled in Technical Particulars along with Size and weight/sq.m of G.I. Flat, Standard Length, Galvanization Process, Galvanization thickness 2. General description of the equipment and all components including brochures. 3. Bill of Material 4. Type test Certificates 4. Type test Certificates	18.0	ACCESSORIES	To be provided by BA	
After award of order Soft of all the drawing, GTP, test certificates shall be submitted for the final approval of the same to the purchaser.	19.0		 Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid: 1. Completely filled in Technical Particulars along with Size and weight/sq.m of G.I. Flat, Standard Length, Galvanization Process, Galvanization thickness 2. General description of the equipment and all components including brochures. 3. Bill of Material 4. Type test Certificates 5. Experience List. 	



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Ranjan Kumar Sahoo	Priya Kumar Sharma	Mahendra Kumar Pandey			

		SI. No	Description	For Approval	For Review Information	Final Submission
		1	General Technical Parameters			V
		2	Manual/Catalogues/drawings for all components.		V	
		3	Technical details and test certificates of the component.		\checkmark	\checkmark
		4	Instructions for use			
		5	Transport/shipping dimension drawing		\checkmark	\checkmark
		6	QA & QC Plan	\checkmark		
		7	Routine, Acceptance and Type test Certificates		V	
		All the	Documents and Drawings shall b	be in English L	anguage.	
20.0	GUARANTEED TECHNICAL PARTICULARS	Clause wise compliance shall be provided by bidders				

		(TO BE ENCLOSED WITH THE BID) All deviations from this specification shall be set out by the Bidders, claus Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the TPSODL's specifications:		
21.0	SCHEDULE OF DEVIATIONS	S.No.	Clause No.	Details of deviation with justifications
		We confirm that Seal of the Corr		tions apart from those detailed above.
		Seal of the Con	ιραιιγ.	Signature Designation

TPSØDL	STRIBUTION LIMITED,		
V	TECHNICAL SPECIFICATION		
Document Title	SPECIFICATION FOR GALVANISED IRON (GI) FLAT 50X6		
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1. SCOPE

CONTENTS

- 2. APPLICABLE STANDARDS
- 3. CLIMATIC CONDITIONS OF INSTALLATION
- 4. GENERAL TECHNICAL REQUIREMENTS
- 5. GENERAL CONSTRUCTION
- 6. NAME PLATE AND MARKING
- 7. TESTS
- 8. TYPE TEST CERTIFICATES
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- **10. INSPECTION AFTER RECEIPT AT STORES**
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- 18. SPARES, ACCESSORIES AND TOOLS
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Prepared By	Reviewed By	Approved & Issued By		
Ranjan Kumar Sahoo	Priya Kumar Sharma	Mahendra Kumar Pandey		

1.0	SCOPE	This specification covers technical requirements of design, manufacturing, testing, Inspection, Supply & transportation of Hot dip Galvanised Iron (GI) Flat 50X6 MM at TPSODL stores/site.		
2.0	APPLICABLE STANDARDS	 The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International Standards and shall confirm to the regulations of the local Statutory authorities: IS 1239 (Part1): Specification for Steel Tubes, Tubulars & other wrought steel fittings. IS 1239 (Part2): Specification for Steel Tubes, Tubulars & other steel fittings. IS 228: Method for chemical analysis of steels. IS 4756: Specification for Hot dip zinc coating on mild steel tubes IS 4756: Specification for Hot dip zinc coating on structural steel and other allied products. IS 1887: General requirements for the supply of metallurgical materials. IS 1608: Mechanical testing of metals-Tensile Strength. IS 4740: Code of practice for packaging of steel tubes. IS 10748: Hot rolled steel strip for welded tubes & pipes. IS 12278: Method for ring tensile test on metallic tubes. IS 1367: Technical supply conditions for threaded steel fastners. IS 14394: Industrial fastners-Nuts of product GradeC- Hot Dip Galvanised. IS 2016: 1997: Specification for plain washers. IS 1730-1989: Steel plates, sheets, strips and flats for structural And general engineering purpose-Dimensions IS 814-2004: covered electrodes for manual metal Arc welding of carbon and carbon Manganese steel- specification. IS: 2629(1966)- Recommended practice for hot dip galvanized of Iron Earthing Strips IS: 233(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. IS: 3758(1969)- Specification for hot dip galvanized coating on fastness I IS: 3203-Specification for hot dip galvanized coating on fastness I IS: 3203-Specification for hot dip galvanized coating on fastness I IS: 32042 'In case of any conflict on any technical particular in the specification,		
3.0	CLIMATIC CONDITIONS OF INSTALLATION	The service conditions shall be as follows: 1. Maximum altitude above sea level 1,000m 2. Maximum ambient air temperature 50°C 3. Maximum daily average ambient air temperature 35°C		

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IPSOUL BERHAMPUR				
D		TECHNICAL SPECIFICATION		
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	 4. Minimum ambient air temperature 0°C 5. Maximum relative humidity 95% 6. Average number of thunderstorm days per 7. Average number of rainy days per annum 8. Average annual rainfall 150cm 9. Earthquakes of an intensity in horizon 	120		
	acceleration of 0.3g 10. Earthquakes of an intensity in vert acceleration of 0.15g (g being acceleration due to gravity) 11 .Wind velocity: 300 km/hr, 200 km/hr and Environmentally, some of the regions, where areas, subject to high relative humidity, which winds will frequently be salt laden. On o condensation may create pollution conditions in heavily industrial polluted areas.	160 km/hr. the work will take place includes coastal h can give rise to condensation. Onshore occasions, the combination of salt and		
	Therefore, Outdoor material and equipment in exposed, heavily polluted, salty, corrosive The design of equipment and accessories forces corresponding to an acceleration of 0.	and humid coastal atmosphere shall be suitable to withstand seismic		
	MATERIAL			
	Supplier has to purchase raw material cost.	ls (MS Flat) as per relevant IS at his own		
	The zinc required for galvanizing sha confirm to IS and its latest amendmen	II be quality Zn-98 Zinc grade & shall ts.		
	commissioning of work, sufficient q quality for galvanizing. The Supplien period with the supply of zinc. TPSO	angement for procurement before the juantity of electrolytic zinc of proper r shall however not link the delivery DL is at liberty to have sample of zinc		

All raw materials required for galvanizing etc. and for complete execution of work shall be stocked in adequate quantities by the Supplier to ensure that the progress of work is not hampered.

used and to test in any laboratory at his own cost and reject the particular

GENERAL TECHNICAL 4.0 REQUIREMENTS

GALVANISING

supply, is found below standard.

Fully galvanized Iron flat shall be used. Galvanized Iron flats shall confirm to relevant IS and its latest amendment. The zinc deposition should not be less than 705 grams/meter square of the galvanized surface area of the MS Flat.

All galvanized materials shall withstand test as per IS: 2633 (1972) and latest IS and its latest amendment. The weight of zinc coating shall determine as per the method stipulated in IS: 2633(1964) and latest IS and its latest amendment.

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Ranjan Kumar Sahoo	Priya Kumar Sharma	Mahendra Kumar Pandey	

5.0	GENERAL CONSTRUCTION	GI Flat intended for different use in electricity distribution utility. The zinc coating shall be uniform. The materials shall be strictly from approved vendors' i.e. SAIL, TATA Steel, ESSAR, JSW Steel and TATA steel BSL. Documentary evidence certifying the raw material lifted from the approved vendor, which should not be less than the ordered quantity. Similarly the zinc for galvanization shall be procured from Hindustan zinc LTD. or Vedanta LTD. And the firm shall submit the documentary evidence certifying not less than the ordered quantity of zinc lifted from the approved vendor. The hot dip galvanization shall be done only after the all fabrication and welding done. The nut bolt, & washers provided shall be as per relevant IS.
6.0	NAME PLATE AND MARKING	The body of the device shall be appropriately marked with "PROPERTY OF TPSODL" and the RC /RO no. at suitable location such that it is permanent and does not harm the body of the device.
7.0	TESTS	All routine, acceptance & type tests shall be carried out in accordance with the relevant IS.
7.i)	TYPE TEST	 The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment) 1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 & 14.1.1) Percentage of Elongation. Tensile strength. 2) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1) 3) Chemical composition. (As per 1239 Part-1: 2004 or Latest Amendment clause no.6.1.1)
7.ii)	ROUTINE/ ACCEPTANCE TEST	 The following tests shall be got conducted in presence of TPSODL representative as per IS: 1239 Part-1: 2004 (Latest Amendment) on the samples taken from the offered lot material for the purpose of acceptance of that lot of material. 1) Dimension of GI Flat. (As per IS 1239 Part-1: 2004 clause No.9.1 a&b)-Test shall be performed. 2) Chemical composition (Manufacturer's Test Certificate for raw material-Document Review only.) 3) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1)-Test shall be performed. 4) Test for mechanical properties (Manufacturer's Test Certificate for raw material-Document Review only.) 5) Galvanizing/Electroplating test 6) Visual Inspection test to confirm products free from any defects
8.0	TYPE TEST CERTIFICATES	The bidder shall furnish the type test certificates as mentioned as above as per the corresponding standards, if asked for by TPSODL. All type tests shall be conducted from NABL accredited Lab as per the relevant standards during the period not

TOCODI	TATA POWER SOUTHER	N ODISHA DISTRIBUTION LIMITED,		
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		exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPSODL.
9.0	PRE DISPATCH INSPECTION	The Material shall be subject to inspection by a duly authorized representative of the TPSODL. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPSODL's representatives at all times when the work is in progress. Inspection by the TPSODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPSODL. The pre-dispatch inspection shall be carried out as per annexure-IV Following documents shall be sent along with material a) Test reports b) MDCC issued by TPSODL c) Invoice in duplicate
		 d) Packing list e) Drawings & catalogue f) Guarantee / Warrantee card g) Delivery Challan h) Other Documents (as applicable)
10.0	INSPECTION AFTER RECEIPT AT STORES	The material received at TPSODL store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to each QA and Plant Engineering group.
11.0	GUARANTEE	Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of 12 months from the date of commissioning or 18 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be. Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.
12.0	PACKING	Bidder shall ensure that the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.



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\vdash			
13.0	TENDER SAMPLE	Samples to be provided as required to TPSODL Engineering Dept.	
14.0	TRAINING	Not Applicable	
15.0	QUALITY CONTROL	The bidder shall have a prove track of not less than 10 years in GI Flat in manufacturing and servicing in national or international market. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.	
16.0	MINIMUM TESTING FACILITIES	Bidder shall have adequate in house testing facilities for carrying out all routine tests & acceptance tests as per relevant Indian standards.	
17.0	MANUFACTURING ACTIVITIES	The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.	
18.0	SPARES ACCESSORIES AND TOOLS	To be provided by BA	
19.0	DRAWINGS AND DOCUMENTS	 Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication. Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid: Completely filled in Technical Particulars along with Size and weight/sq.m of G.I. Flat, Standard Length, Galvanization Process, Galvanization thickness General description of the equipment and all components including brochures. Bill of Material Type test Certificates Experience List. 	
		for the final approval of the same to the purchaser.	



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		Following Drawings/Documents shall be submitted after the award of the contract:				
		SI. No	Description	For Approval	For Review Information	Final Submission
		1	General Technical Parameters			
		2	Manual/Catalogues/drawings for all components.		\checkmark	
		3	Technical details and test certificates of the component.		\checkmark	\checkmark
		4	Instructions for use		\checkmark	
		5	Transport/shipping dimension drawing		\checkmark	\checkmark
		6	QA & QC Plan			
		7	Routine, Acceptance and Type test Certificates		\checkmark	\checkmark
		All the	Documents and Drawings shall b	be in English L	anguage.	
20.0	GUARANTEED TECHNICAL PARTICULARS	Clause	e wise compliance shall be provid	led by bidders		

21.0	SCHEDULE OF DEVIATIONS	S.No.	Clause No.	Details of deviation with justifications
		We confirm tha Seal of the Con		tions apart from those detailed above.
				Signature Designation

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Ranjan Kumar Sahoo	Priya Kumar Sharma	Mahendra Kumar Pandey	

1.0	SCOPE	This specification covers technical requirements of design, manufacturing, testing, Inspection, Supply & transportation of Hot dip Galvanised Iron (GI) Flat 75X10 MM at TPSODL stores/site.	
2.0	APPLICABLE STANDARDS	 The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International Standards and shall confirm to the regulations of the local Statutory authorities: IS 1239 (Part1): Specification for Steel Tubes, Tubulars & other wrought steel fittings. IS 1239 (Part2): Specification for Steel Tubes, Tubulars & other steel fittings. IS 1239 (Part2): Specification for Steel Tubes, Tubulars & other steel fittings. IS 1239 (Part2): Specification for Steel Tubes, Tubulars & other steel fittings. IS 4736 : Specification for Hot dip zinc coating on mild steel tubes IS 4756 : Specification for Hot dip zinc coating on structural steel and other allied products. IS 1887: General requirements for the supply of metallurgical materials. IS 1608: Mechanical testing of metals-Tensile Strength. IS 4740: Code of practice for packaging of steel tubes. IS 10748: Hot rolled steel strip for welded tubes & pipes. IS 12278: Method for ring tensile test on metallic tubes. IS 1367: Technical supply conditions for threaded steel fastners. IS 1730-1989: Steel plates, sheets, strips and flats for structural And general engineering purpose-Dimensions IS 814-2004: covered electrodes for manual metal Arc welding of carbon and carbon Manganese steel - specification. IS: 2629(1966)- Recommended practice for hot dip galvanized of Iron Earthing Strips IS: 233(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. IS: 3203-Specification for Hot dip galvanized coating on fastness I IS: 3203(1969)- Specification for hot dip galvanized coating on fastness I IS: 3203(1969)- Specification for hot dip galvanized coating on fastness I IS: 3203(1969)- Specification for hot dip galvanized coating on f	
3.0	CLIMATIC CONDITIONS OF INSTALLATION	The service conditions shall be as follows: 1. Maximum altitude above sea level 1,000m 2. Maximum ambient air temperature 50°C 3. Maximum daily average ambient air temperature 35°C	

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V	TECHNICAL	SPECIFICATION
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Ranjan Kumar Sahoo	Priya Kumar Sharma	Mahendra Kumar Pandey
	 4. Minimum ambient air temperature 0°C 5. Maximum relative humidity 95% 6. Average number of thunderstorm days per 7. Average number of rainy days per annum 8. Average annual rainfall 150cm 9. Earthquakes of an intensity in horizon acceleration of 0.3g 10. Earthquakes of an intensity in verta acceleration of 0.15g (g being acceleration due to gravity) 11 .Wind velocity: 300 km/hr, 200 km/hr and Environmentally, some of the regions, where areas, subject to high relative humidity, which winds will frequently be salt laden. On of condensation may create pollution conditions in heavily industrial polluted areas. Therefore, Outdoor material and equipment in exposed, heavily polluted, salty, corrosive The design of equipment and accessories forces corresponding to an acceleration of 0. 	120 ontal direction - equivalent to seismic tical direction - equivalent to seismic 160 km/hr. the work will take place includes coastal h can give rise to condensation. Onshore occasions, the combination of salt and s for outdoor insulators. Some places are shall be designed and protected for use and humid coastal atmosphere s shall be suitable to withstand seismic
	cost. The zinc required for galvanizing sha confirm to IS and its latest amendmen The Supplier shall make his own arr commissioning of work, sufficient of quality for galvanizing. The Supplie period with the supply of zinc. TPSO used and to test in any laboratory at supply, is found below standard. All raw materials required for galvaniz	rangement for procurement before the quantity of electrolytic zinc of proper r shall however not link the delivery DL is at liberty to have sample of zinc this own cost and reject the particular zing etc. and for complete execution of quantities by the Supplier to ensure that

Fully galvanized Iron flat shall be used. Galvanized Iron flats shall confirm to relevant IS and its latest amendment. The zinc deposition should not be less than 705 grams/meter square of the galvanized surface area of the MS Flat.

All galvanized materials shall withstand test as per IS: 2633 (1972) and latest IS and its latest amendment. The weight of zinc coating shall determine as per the method stipulated in IS: 2633(1964) and latest IS and its latest amendment.

GALVANISING

TECHNICAL

REQUIREMENTS

4.0

TPSODL	TATA POWER SOUTHERN ODISHA DI BERHAMPUR	STRIBUTION LIMITED,	
	TECHNICAL SPECIFIC	ATION	
Document Title	SPECIFICATION FOR GALVANISED IRON (GI) FLAT 75X10		
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Ranjan Kumar Sahoo	Priya Kumar Sharma	Mahendra Kumar Pandey	

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5.0	GENERAL CONSTRUCTION	GI Flat intended for different use in electricity distribution utility. The zinc coating shall be uniform. The materials shall be strictly from approved vendors' i.e. SAIL, TATA Steel, ESSAR, JSW Steel and TATA steel BSL. Documentary evidence certifying the raw material lifted from the approved vendor, which should not be less than the ordered quantity. Similarly the zinc for galvanization shall be procured from Hindustan zinc LTD. or Vedanta LTD. And the firm shall submit the documentary evidence certifying not less than the ordered quantity of zinc lifted from the approved vendor. The hot dip galvanization shall be done only after the all fabrication and welding done. The nut bolt, & washers provided shall be as per relevant IS.	
6.0	NAME PLATE AND MARKING	The body of the device shall be appropriately marked with "PROPERTY OF TPSODL" and the RC /RO no. at suitable location such that it is permanent and does not harm the body of the device.	
7.0	TESTS	All routine, acceptance & type tests shall be carried out in accordance with the relevant IS.	
7.i)	TYPE TEST	 The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment) 1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 & 14.1.1) Percentage of Elongation. Tensile strength. 2) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1) 3) Chemical composition. (As per 1239 Part-1: 2004 or Latest Amendment 	
7.ii)	ROUTINE/ ACCEPTANCE TEST	 clause no.6.1.1) The following tests shall be got conducted in presence of TPSODL representative as per IS: 1239 Part-1: 2004 (Latest Amendment) on the samples taken from the offered lot material for the purpose of acceptance of that lot of material. 1) Dimension of GI Flat. (As per IS 1239 Part-1: 2004 clause No.9.1 a&b)-Test shall be performed. 2) Chemical composition (Manufacturer's Test Certificate for raw material-Document Review only.) 3) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1)-Test shall be performed. 4) Test for mechanical properties (Manufacturer's Test Certificate for raw material-Document Review only.) 5) Galvanizing/Electroplating test 6) Visual Inspection test to confirm products free from any defects 	
8.0	TYPE TEST CERTIFICATES	The bidder shall furnish the type test certificates as mentioned as above as per the corresponding standards, if asked for by TPSODL. All type tests shall be conducted from NABL accredited Lab as per the relevant standards during the period not	

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		exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPSODL.	
9.0	PRE DISPATCH INSPECTION	The Material shall be subject to inspection by a duly authorized representative of the TPSODL. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPSODL's representatives at all times when the work is in progress. Inspection by the TPSODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPSODL. The pre-dispatch inspection shall be carried out as per annexure-IV	
		 b) MDCC issued by TPSODL c) Invoice in duplicate d) Packing list e) Drawings & catalogue f) Guarantee / Warrantee card g) Delivery Challan h) Other Documents (as applicable) 	
10.0	INSPECTION AFTER RECEIPT AT STORES	The material received at TPSODL store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to each QA and Plant Engineering group.	
11.0	GUARANTEE	Bidder shall stand guarantee towards design, materials, workmanship & quality of process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of 12 months from the date of commissioning or 18 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be. Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.	
12.0	PACKING	Bidder shall ensure that the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.	



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15.0 QUALITY manufacturing and servicing in national of submit with the offer Quality assurance inspection, the tests and checks which construction components during manufacturing and servicing in national of submit with the offer Quality assurance inspection, the tests and checks which construction components during manufacturing manufact	or international market. The bidder shall e plan indicating the various stages of will be carried out on the material of acture and bought out items and fully after finishing. As part of the plan, a	
15.0 QUALITY manufacturing and servicing in national of submit with the offer Quality assurance inspection, the tests and checks which construction components during manufacturing and servicing in national of submit with the offer Quality assurance inspection, the tests and checks which construction components during manufacturing manufact	or international market. The bidder shall e plan indicating the various stages of will be carried out on the material of acture and bought out items and fully after finishing. As part of the plan, a	
assembled component and equipment schedule for stage and final inspection schedule shall be furnished. The Pu	The bidder shall have a prove track of not less than 10 years in GI Flat in manufacturing and servicing in national or international market. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.	
	Bidder shall have adequate in house testing facilities for carrying out all routine ests & acceptance tests as per relevant Indian standards.	
activities clearly elaborating each stage, wMANUFACTURINGline with the Quality assurance plan sub	The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.	
18.0 SPARES ACCESSORIES AND TOOLS To be provided by BA	To be provided by BA	
Image: 19.0DRAWINGS AND DOCUMENTSShould be followed for fabrication.Following documents shall be prepared statutory requirements with complete BON1. Completely filled in Tech weight/sq.m of G.I. Flat, S Galvanization thickness	 Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication. Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid: Completely filled in Technical Particulars along with Size and weight/sq.m of G.I. Flat, Standard Length, Galvanization Process, Galvanization thickness General description of the equipment and all components including brochures. Bill of Material Type test Certificates Experience List. 	



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		SI. No	Description	For Approval	For Review Information	Final Submission
		1	General Technical Parameters	•• √		
		2	Manual/Catalogues/drawings for all components.		V	
		3	Technical details and test certificates of the component.		V	V
		4	Instructions for use			\checkmark
		5	Transport/shipping dimension drawing		\checkmark	
		6	QA & QC Plan	\checkmark		\checkmark
		7	Routine, Acceptance and Type test Certificates		\checkmark	
		All the	Documents and Drawings shall b	be in English L	anguage.	
20.0	GUARANTEED TECHNICAL PARTICULARS	Clause	e wise compliance shall be provid	led by bidders		

		Clause in this	from this specificati schedule. Unless s	ENCLOSED WITH THE BID) on shall be set out by the Bidders, clause by pecifically mentioned in this Schedule, the n the TPSODL's specifications:
21.0	SCHEDULE OF DEVIATIONS	S.No.	Clause No.	Details of deviation with justifications
		We confirm that Seal of the Corr		tions apart from those detailed above.
		Seal of the Con	ιραιιγ.	Signature Designation

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V	TECHNICAL SPECIFIC	ATION
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1. SCOPE

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- 3. CLIMATIC CONDITIONS OF INSTALLATION
- 4. GENERAL TECHNICAL REQUIREMENTS
- 5. GENERAL CONSTRUCTION
- 6. NAME PLATE AND MARKING
- 7. TESTS
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- 9. PRE-DISPATCH INSPECTION
- **10. INSPECTION AFTER RECEIPT AT STORES**
- 11. GUARANTEE
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- 13. TENDER SAMPLE
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- **15. QUALITY CONTROL**
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- **17. MANUFACTURING ACTIVITIES**
- 18. SPARES, ACCESSORIES AND TOOLS
- **19. DRAWINGS AND DOCUMENTS**
- 20. GUARANTEED TECHNICAL PARTICULARS
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1.0	SCOPE	This specification covers technical requirements of design, manufacturing, testing, Inspection, Supply & transportation of Hot dip Galvanised Iron (GI) Flat 90X6 MM at TPSODL stores/site.
2.0	APPLICABLE STANDARDS	 The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International Standards and shall confirm to the regulations of the local Statutory authorities: IS 1239 (Part1): Specification for Steel Tubes, Tubulars & other wrought steel fittings. IS 1239 (Part2): Specification for Steel Tubes, Tubulars & other steel fittings. IS 228: Method for chemical analysis of steels. IS 4736 : Specification for Hot dip zinc coating on mild steel tubes IS 4759: Specification for Hot dip zinc coating on structural steel and other allied products. IS 1887: General requirements for the supply of metallurgical materials. IS 1608: Mechanical testing of metals-Tensile Strength. IS 4740: Code of practice for packaging of steel tubes. IS 10748: Hot rolled steel strip for welded tubes & pipes. IS 12278: Method for ring tensile test on metallic tubes. IS 1367: Technical supply conditions for threaded steel fastners. IS 14394: Industrial fastners-Nuts of product GradeC- Hot Dip Galvanised. IS 2016:-1997: Specification for plain washers. IS 1730-1989: Steel plates, sheets, strips and flats for structural And general engineering purpose-Dimensions IS 2629(1966)- Recommended practice for hot dip galvanized of Iron Earthing Strips IS: 2633(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. IS: 323(1969)- Specification for hot dip galvanized coating on fastness I IS: 3258(1969)- Specification for hot dip galvanized coating on fastness I IS: 3259(1968)- Specification for hot dip galvanized coating on fastness I IS: 3259(1968)- Specification for hot dip galvanized coating on fastness I IS: 3259(1968)- Specification for hot dip galvanized coating on fastness I IS: 3259
3.0	CLIMATIC CONDITIONS OF INSTALLATION	The service conditions shall be as follows: 1. Maximum altitude above sea level 1,000m 2. Maximum ambient air temperature 50°C 3. Maximum daily average ambient air temperature 35°C

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	acceleration of 0.3g 10. Earthquakes of an intensity in very acceleration of 0.15g (g being acceleration due to gravity) 11 .Wind velocity: 300 km/hr, 200 km/hr ar Environmentally, some of the regions, whe areas, subject to high relative humidity, wh winds will frequently be salt laden. On	im 120 izontal direction - equivalent to seismic ertical direction - equivalent to seismic
	in exposed, heavily polluted, salty, corrosiv The design of equipment and accessori forces corresponding to an acceleration of	ies shall be suitable to withstand seismic
	MATERIAL	
	Supplier has to purchase raw mate cost.	rials (MS Flat) as per relevant IS at his own
	The zinc required for galvanizing s confirm to IS and its latest amendm	shall be quality Zn-98 Zinc grade & shall nents.
	commissioning of work, sufficient quality for galvanizing. The Supp period with the supply of zinc. TPS	arrangement for procurement before the quantity of electrolytic zinc of proper lier shall however not link the delivery SODL is at liberty to have sample of zinc

All raw materials required for galvanizing etc. and for complete execution of work shall be stocked in adequate quantities by the Supplier to ensure that the progress of work is not hampered.

used and to test in any laboratory at his own cost and reject the particular

GENERAL TECHNICAL 4.0 REQUIREMENTS

GALVANISING

supply, is found below standard.

Fully galvanized Iron flat shall be used. Galvanized Iron flats shall confirm to relevant IS and its latest amendment. The zinc deposition should not be less than 705 grams/meter square of the galvanized surface area of the MS Flat.

All galvanized materials shall withstand test as per IS: 2633 (1972) and latest IS and its latest amendment. The weight of zinc coating shall determine as per the method stipulated in IS: 2633(1964) and latest IS and its latest amendment.

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5.0	GENERAL CONSTRUCTION	GI Flat intended for different use in electricity distribution utility. The zinc coating shall be uniform. The materials shall be strictly from approved vendors' i.e. SAIL, TATA Steel, ESSAR, JSW Steel and TATA steel BSL. Documentary evidence certifying the raw material lifted from the approved vendor, which should not be less than the ordered quantity. Similarly the zinc for galvanization shall be procured from Hindustan zinc LTD. or Vedanta LTD. And the firm shall submit the documentary evidence certifying not less than the ordered quantity of zinc lifted from the approved vendor. The hot dip galvanization shall be done only after the all fabrication and welding done. The nut bolt, & washers provided shall be as per relevant IS.	
6.0	NAME PLATE AND MARKING	The body of the device shall be appropriately marked with "PROPERTY OF TPSODL" and the RC /RO no. at suitable location such that it is permanent and does not harm the body of the device.	
7.0	TESTS	All routine, acceptance & type tests shall be carried out in accordance with the relevant IS.	
7.i)	TYPE TEST	 The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment) 1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 & 14.1.1) Percentage of Elongation. Tensile strength. 2) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1) 3) Chemical composition. (As per 1239 Part-1: 2004 or Latest Amendment clause no.5.1) 	
7.ii)	ROUTINE/ ACCEPTANCE TEST	 The following tests shall be got conducted in presence of TPSODL representative as per IS: 1239 Part-1: 2004 (Latest Amendment) on the samples taken from the offered lot material for the purpose of acceptance of that lot of material. 1) Dimension of GI Flat. (As per IS 1239 Part-1: 2004 clause No.9.1 a&b)-Test shall be performed. 2) Chemical composition (Manufacturer's Test Certificate for raw material-Document Review only.) 3) Mass of zinc coating. (As per 4736:1986 or Latest Amendment clause no.5.1)-Test shall be performed. 4) Test for mechanical properties (Manufacturer's Test Certificate for raw material-Document Review only.) 5) Galvanizing/Electroplating test 6) Visual Inspection test to confirm products free from any defects 	
8.0	TYPE TEST CERTIFICATES	The bidder shall furnish the type test certificates as mentioned as above as per the corresponding standards, if asked for by TPSODL. All type tests shall be conducted from NABL accredited Lab as per the relevant standards during the period not	

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		exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPSODL.	
9.0	PRE DISPATCH INSPECTION	The Material shall be subject to inspection by a duly authorized representative of the TPSODL. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPSODL's representatives at all times when the work is in progress. Inspection by the TPSODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPSODL. The pre-dispatch inspection shall be carried out as per annexure-IV Following documents shall be sent along with material a) Test reports b) MDCC issued by TPSODL c) Invoice in duplicate	
		 d) Packing list e) Drawings & catalogue f) Guarantee / Warrantee card g) Delivery Challan h) Other Documents (as applicable) 	
10.0	INSPECTION AFTER RECEIPT AT STORES	The material received at TPSODL store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to each QA and Plant Engineering group.	
11.0	GUARANTEE	Bidder shall stand guarantee towards design, materials, workmanship & quality or process / manufacturing of items under this contract for due and intended performance of the same, as an integrated product delivered under this contract. In the event any defect is found by the Purchaser up to a period of 12 months from the date of commissioning or 18 months from the date of last supplies made under the contract whichever is earlier, Bidder shall be liable to undertake to replace/rectifis such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of the Purchaser, failing which the Purchaser will be at liberty to get i replaced/rectified at Bidder's risks and costs and recover all such expenses plus the Purchaser's own charges (@ 20% of expenses incurred), from the Bidder or from the "Security cum Performance Deposit" as the case may be. Bidder shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Purchaser.	
12.0	PACKING	Bidder shall ensure that the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment from damage in transit.	



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13.0				
	TENDER SAMPLE	Samples to be provided as required to TPSODL Engineering Dept.		
14.0	TRAINING	Not Applicable		
160	QUALITY CONTROL	The bidder shall have a prove track of not less than 10 years in GI Flat in manufacturing and servicing in national or international market. The bidder shall submit with the offer Quality assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections.		
16.0	MINIMUM TESTING FACILITIES	Bidder shall have adequate in house testing facilities for carrying out all routine tests & acceptance tests as per relevant Indian standards.		
	MANUFACTURING ACTIVITIES	The successful bidder will have to submit the bar chart for various manufacturing activities clearly elaborating each stage, with quantity. This bar chart should be in line with the Quality assurance plan submitted with the offer. This bar chart will have to be submitted within 15 days from the release of the order.		
18.0	SPARES ACCESSORIES AND TOOLS	To be provided by BA		
	DRAWINGS AND DOCUMENTS	Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication. Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid: 1. Completely filled in Technical Particulars along with Size and weight/sq.m of G.I. Flat, Standard Length, Galvanization Process, Galvanization thickness 2. General description of the equipment and all components including brochures. 3. Bill of Material 4. Type test Certificates 5. Experience List. After award of order Soft of all the drawing, GTP, test certificates shall be submitted for the final approval of the same to the purchaser.		



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		SI. No	Description	For Approval	For Review Information	Final Submission
		1	General Technical Parameters			V
		2	2 Manual/Catalogues/drawings √ for all components.			
		3	3 Technical details and test $$ certificates of the component.			
		4	Instructions for use			\checkmark
		5	Transport/shipping dimension drawing		\checkmark	
		6	QA & QC Plan	\checkmark		\checkmark
		7	Routine, Acceptance and Type test Certificates		V	V
		All the Documents and Drawings shall be in English Language.				
20.0	GUARANTEED TECHNICAL PARTICULARS	Clause wise compliance shall be provided by bidders				

	SCHEDULE OF DEVIATIONS	(TO BE ENCLOSED WITH THE BID) All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the TPSODL's specifications:			
21.0		S.No.	Clause No.	Details of deviation with justifications	
		We confirm that Seal of the Con		ions apart from those detailed above.	
			ipany.	Signature Designation	