

	TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	SPECIFICATION FOR GALVANISED IRON (GI) FLAT 25X4	
Document No.	ENG-HV-GI Flat 25X4	Eff. Date:22-03-2022
Revision No.	00	Page 1 of 7
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By Mahendra Kumar Pandey

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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 25X4 MM at TPSODL stores/site.
2.0	APPLICABLE STANDARDS	<p>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:</p> <ul style="list-style-type: none"> • 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 1387: General requirements for the supply of metallurgical materials. • IS 1608: Mechanical testing of metals-Tensile Strength. • IS 4711: Methods for sampling of steel pipes, tubes and fittings. • 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 3043-1987: Code of practice for earthing. • 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: 2633(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. • IS: 5358(1969)- Specification for hot dip galvanized coating on fastness I • IS:3203-Specification for Electroplating • IS: 4759(1968)- IS: 4759(1968) • IS 2062 <p><i>*In case of any conflict on any technical particular in the specification, the stricter requirement mentioned in the relevant standard shall be valid.</i></p>
3.0	CLIMATIC CONDITIONS OF INSTALLATION	<p>The service conditions shall be as follows:</p> <ol style="list-style-type: none"> 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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		<p>4. Minimum ambient air temperature 0°C</p> <p>5. Maximum relative humidity 95%</p> <p>6. Average number of thunderstorm days per annum (isokeraunic level) 70</p> <p>7. Average number of rainy days per annum 120</p> <p>8. Average annual rainfall 150cm</p> <p>9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g</p> <p>10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)</p> <p>11 .Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr.</p> <p>Environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas.</p> <p>Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.</p>
4.0	GENERAL TECHNICAL REQUIREMENTS	<p>MATERIAL</p> <p>Supplier has to purchase raw materials (MS Flat) as per relevant IS at his own cost.</p> <p>The zinc required for galvanizing shall be quality Zn-98 Zinc grade & shall confirm to IS and its latest amendments.</p> <p>The Supplier shall make his own arrangement for procurement before the commissioning of work, sufficient quantity of electrolytic zinc of proper quality for galvanizing. The Supplier shall however not link the delivery period with the supply of zinc. TPSODL is at liberty to have sample of zinc used and to test in any laboratory at his own cost and reject the particular supply, is found below standard.</p> <p>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.</p> <p>GALVANISING</p> <p>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.</p> <p>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.</p>

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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	<p>The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment)</p> <ol style="list-style-type: none"> 1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 & 14.1.1) <ul style="list-style-type: none"> • 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	<p>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.</p> <ol style="list-style-type: none"> 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	<p>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</p> <p>Following documents shall be sent along with material</p> <ol style="list-style-type: none"> Test reports MDCC issued by TPSODL Invoice in duplicate Packing list Drawings & catalogue Guarantee / Warrantee card Delivery Challan 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	<p>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.</p> <p>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.</p>
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
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	<p>Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication.</p> <p>Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid:</p> <ol style="list-style-type: none"> 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. <p>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.</p>

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		<p>Following Drawings/Documents shall be submitted after the award of the contract:</p> <table><tr><th>Sl. No</th><th>Description</th><th>For Approval</th><th>For Review Information</th><th>Final Submission</th></tr><tr><td>1</td><td>General Technical Parameters</td><td>√</td><td></td><td>√</td></tr><tr><td>2</td><td>Manual/Catalogues/drawings for all components.</td><td></td><td>√</td><td></td></tr><tr><td>3</td><td>Technical details and test certificates of the component.</td><td></td><td>√</td><td>√</td></tr><tr><td>4</td><td>Instructions for use</td><td></td><td>√</td><td>√</td></tr><tr><td>5</td><td>Transport/shipping dimension drawing</td><td></td><td>√</td><td>√</td></tr><tr><td>6</td><td>QA & QC Plan</td><td>√</td><td>√</td><td>√</td></tr><tr><td>7</td><td>Routine, Acceptance and Type test Certificates</td><td>√</td><td>√</td><td>√</td></tr></table> <p>All the Documents and Drawings shall be in English Language.</p>	Sl. No	Description	For Approval	For Review Information	Final Submission	1	General Technical Parameters	√		√	2	Manual/Catalogues/drawings for all components.		√		3	Technical details and test certificates of the component.		√	√	4	Instructions for use		√	√	5	Transport/shipping dimension drawing		√	√	6	QA & QC Plan	√	√	√	7	Routine, Acceptance and Type test Certificates	√	√	√
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20.0	GUARANTEED TECHNICAL PARTICULARS	Clause wise compliance shall be provided by bidders																																								

		<p align="center"><u>(TO BE ENCLOSED WITH THE BID)</u></p> <p>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:</p> <table border="1"> <thead> <tr> <th>S.No.</th><th>Clause No.</th><th>Details of deviation with justifications</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td></tr> </tbody> </table> <p>We confirm that there are no deviations apart from those detailed above.</p> <p>Seal of the Company:</p> <p align="right">Signature Designation</p>	S.No.	Clause No.	Details of deviation with justifications			
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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	<p>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:</p> <ul style="list-style-type: none"> • 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 1387: General requirements for the supply of metallurgical materials. • IS 1608: Mechanical testing of metals-Tensile Strength. • IS 4711: Methods for sampling of steel pipes, tubes and fittings. • 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 3043-1987: Code of practice for earthing. • 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: 2633(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. • IS: 5358(1969)- Specification for hot dip galvanized coating on fastness I • IS:3203-Specification for Electroplating • IS: 4759(1968)- IS: 4759(1968) • IS 2062 <p><i>*In case of any conflict on any technical particular in the specification, the stricter requirement mentioned in the relevant standard shall be valid.</i></p>
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		<p>4. Minimum ambient air temperature 0°C</p> <p>5. Maximum relative humidity 95%</p> <p>6. Average number of thunderstorm days per annum (isokeraunic level) 70</p> <p>7. Average number of rainy days per annum 120</p> <p>8. Average annual rainfall 150cm</p> <p>9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g</p> <p>10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)</p> <p>11 .Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr.</p> <p>Environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas.</p> <p>Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.</p>
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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	<p>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</p> <p>Following documents shall be sent along with material</p> <ol style="list-style-type: none"> Test reports MDCC issued by TPSODL Invoice in duplicate Packing list Drawings & catalogue Guarantee / Warrantee card Delivery Challan 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	<p>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.</p> <p>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.</p>
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
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	<p>Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication.</p> <p>Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid:</p> <ol style="list-style-type: none"> 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. <p>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.</p>

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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 50X6 MM at TPSODL stores/site.
2.0	APPLICABLE STANDARDS	<p>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:</p> <ul style="list-style-type: none"> • 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 1387: General requirements for the supply of metallurgical materials. • IS 1608: Mechanical testing of metals-Tensile Strength. • IS 4711: Methods for sampling of steel pipes, tubes and fittings. • 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 3043-1987: Code of practice for earthing. • 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: 2633(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. • IS: 5358(1969)- Specification for hot dip galvanized coating on fastness I • IS:3203-Specification for Electroplating • IS: 4759(1968)- IS: 4759(1968) • IS 2062 <p><i>*In case of any conflict on any technical particular in the specification, the stricter requirement mentioned in the relevant standard shall be valid.</i></p>
3.0	CLIMATIC CONDITIONS OF INSTALLATION	<p>The service conditions shall be as follows:</p> <ol style="list-style-type: none"> 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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		<p>4. Minimum ambient air temperature 0°C</p> <p>5. Maximum relative humidity 95%</p> <p>6. Average number of thunderstorm days per annum (isokeraunic level) 70</p> <p>7. Average number of rainy days per annum 120</p> <p>8. Average annual rainfall 150cm</p> <p>9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g</p> <p>10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)</p> <p>11 .Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr.</p> <p>Environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas.</p> <p>Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.</p>
4.0	GENERAL TECHNICAL REQUIREMENTS	<p>MATERIAL</p> <p>Supplier has to purchase raw materials (MS Flat) as per relevant IS at his own cost.</p> <p>The zinc required for galvanizing shall be quality Zn-98 Zinc grade & shall confirm to IS and its latest amendments.</p> <p>The Supplier shall make his own arrangement for procurement before the commissioning of work, sufficient quantity of electrolytic zinc of proper quality for galvanizing. The Supplier shall however not link the delivery period with the supply of zinc. TPSODL is at liberty to have sample of zinc used and to test in any laboratory at his own cost and reject the particular supply, is found below standard.</p> <p>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.</p> <p>GALVANISING</p> <p>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.</p> <p>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.</p>

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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	<p>The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment)</p> <ol style="list-style-type: none"> 1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 & 14.1.1) <ul style="list-style-type: none"> • 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	<p>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.</p> <ol style="list-style-type: none"> 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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21. SCHEDULE OF DEVIATIONS

	TATA POWER SOUTHERN ODISHA DISTRIBUTION LIMITED, BERHAMPUR	
	TECHNICAL SPECIFICATION	
Document Title	SPECIFICATION FOR GALVANISED IRON (GI) FLAT 75X10	
Document No.	ENG-HV-GI Flat 75X10	Eff. Date:22-03-2022
Revision No.	00	Page 2 of 7
Prepared By Ranjan Kumar Sahoo	Reviewed By Priya Kumar Sharma	Approved & Issued By 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	<p>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:</p> <ul style="list-style-type: none"> • 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 1387: General requirements for the supply of metallurgical materials. • IS 1608: Mechanical testing of metals-Tensile Strength. • IS 4711: Methods for sampling of steel pipes, tubes and fittings. • 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 3043-1987: Code of practice for earthing. • 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: 2633(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. • IS: 5358(1969)- Specification for hot dip galvanized coating on fastness I • IS:3203-Specification for Electroplating • IS: 4759(1968)- IS: 4759(1968) • IS 2062 <p><i>*In case of any conflict on any technical particular in the specification, the stricter requirement mentioned in the relevant standard shall be valid.</i></p>
3.0	CLIMATIC CONDITIONS OF INSTALLATION	<p>The service conditions shall be as follows:</p> <ol style="list-style-type: none"> 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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		<p>4. Minimum ambient air temperature 0°C</p> <p>5. Maximum relative humidity 95%</p> <p>6. Average number of thunderstorm days per annum (isokeraunic level) 70</p> <p>7. Average number of rainy days per annum 120</p> <p>8. Average annual rainfall 150cm</p> <p>9. Earthquakes of an intensity in horizontal direction - equivalent to seismic acceleration of 0.3g</p> <p>10. Earthquakes of an intensity in vertical direction - equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)</p> <p>11 .Wind velocity: 300 km/hr, 200 km/hr and 160 km/hr.</p> <p>Environmentally, some of the regions, where the work will take place includes coastal areas, subject to high relative humidity, which can give rise to condensation. Onshore winds will frequently be salt laden. On occasions, the combination of salt and condensation may create pollution conditions for outdoor insulators. Some places are in heavily industrial polluted areas.</p> <p>Therefore, Outdoor material and equipment shall be designed and protected for use in exposed, heavily polluted, salty, corrosive and humid coastal atmosphere The design of equipment and accessories shall be suitable to withstand seismic forces corresponding to an acceleration of 0.1 g.</p>
4.0	GENERAL TECHNICAL REQUIREMENTS	<p>MATERIAL</p> <p>Supplier has to purchase raw materials (MS Flat) as per relevant IS at his own cost.</p> <p>The zinc required for galvanizing shall be quality Zn-98 Zinc grade & shall confirm to IS and its latest amendments.</p> <p>The Supplier shall make his own arrangement for procurement before the commissioning of work, sufficient quantity of electrolytic zinc of proper quality for galvanizing. The Supplier shall however not link the delivery period with the supply of zinc. TPSODL is at liberty to have sample of zinc used and to test in any laboratory at his own cost and reject the particular supply, is found below standard.</p> <p>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.</p> <p>GALVANISING</p> <p>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.</p> <p>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.</p>

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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	<p>The following tests shall constitute the type tests and shall be carried out as per IS: 1239 Part-1: 2004(Latest Amendment)</p> <ol style="list-style-type: none"> 1)Test for Mechanical Properties (As per 1239 Part-1: 2004 or Latest Amendment clause no.14.1 & 14.1.1) <ul style="list-style-type: none"> • 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	<p>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.</p> <ol style="list-style-type: none"> 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	<p>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</p> <p>Following documents shall be sent along with material</p> <ol style="list-style-type: none"> Test reports MDCC issued by TPSODL Invoice in duplicate Packing list Drawings & catalogue Guarantee / Warrantee card Delivery Challan 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	<p>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.</p> <p>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.</p>
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
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	<p>Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication.</p> <p>Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid:</p> <ol style="list-style-type: none"> 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. <p>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.</p>

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		<p>Following Drawings/Documents shall be submitted after the award of the contract:</p> <table><tr><th>Sl. No</th><th>Description</th><th>For Approval</th><th>For Review Information</th><th>Final Submission</th></tr><tr><td>1</td><td>General Technical Parameters</td><td>√</td><td></td><td>√</td></tr><tr><td>2</td><td>Manual/Catalogues/drawings for all components.</td><td></td><td>√</td><td></td></tr><tr><td>3</td><td>Technical details and test certificates of the component.</td><td></td><td>√</td><td>√</td></tr><tr><td>4</td><td>Instructions for use</td><td></td><td>√</td><td>√</td></tr><tr><td>5</td><td>Transport/shipping dimension drawing</td><td></td><td>√</td><td>√</td></tr><tr><td>6</td><td>QA & QC Plan</td><td>√</td><td>√</td><td>√</td></tr><tr><td>7</td><td>Routine, Acceptance and Type test Certificates</td><td>√</td><td>√</td><td>√</td></tr></table> <p>All the Documents and Drawings shall be in English Language.</p>	Sl. No	Description	For Approval	For Review Information	Final Submission	1	General Technical Parameters	√		√	2	Manual/Catalogues/drawings for all components.		√		3	Technical details and test certificates of the component.		√	√	4	Instructions for use		√	√	5	Transport/shipping dimension drawing		√	√	6	QA & QC Plan	√	√	√	7	Routine, Acceptance and Type test Certificates	√	√	√
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20.0	GUARANTEED TECHNICAL PARTICULARS	Clause wise compliance shall be provided by bidders																																								

		<p align="center"><u>(TO BE ENCLOSED WITH THE BID)</u></p> <p>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:</p> <table border="1"> <thead> <tr> <th>S.No.</th><th>Clause No.</th><th>Details of deviation with justifications</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td></tr> </tbody> </table> <p>We confirm that there are no deviations apart from those detailed above.</p> <p>Seal of the Company:</p> <p align="right">Signature Designation</p>	S.No.	Clause No.	Details of deviation with justifications			
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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	<p>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:</p> <ul style="list-style-type: none"> • 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 1387: General requirements for the supply of metallurgical materials. • IS 1608: Mechanical testing of metals-Tensile Strength. • IS 4711: Methods for sampling of steel pipes, tubes and fittings. • 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 3043-1987: Code of practice for earthing. • 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: 2633(1972)- Methods of testing weight, thickness & uniformity of coating on hot dip galvanized articles. • IS: 5358(1969)- Specification for hot dip galvanized coating on fastness I • IS:3203-Specification for Electroplating • IS: 4759(1968)- IS: 4759(1968) • IS 2062 <p><i>*In case of any conflict on any technical particular in the specification, the stricter requirement mentioned in the relevant standard shall be valid.</i></p>
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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	<p>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</p> <p>Following documents shall be sent along with material</p> <ol style="list-style-type: none"> Test reports MDCC issued by TPSODL Invoice in duplicate Packing list Drawings & catalogue Guarantee / Warrantee card Delivery Challan 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	<p>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.</p> <p>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.</p>
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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	TECHNICAL SPECIFICATION	
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Document No.	ENG-HV-GI Flat 90X6	Eff. Date:22-03-2022
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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	<p>Constructional drawings are attached as annexure-I, annexure-II, annexure-III should be followed for fabrication.</p> <p>Following documents shall be prepared based on TPSODL specifications and statutory requirements with complete BOM and shall be submitted with the bid:</p> <ol style="list-style-type: none"> 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. <p>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.</p>

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		<p>Following Drawings/Documents shall be submitted after the award of the contract:</p> <table><tr><th>Sl. No</th><th>Description</th><th>For Approval</th><th>For Review Information</th><th>Final Submission</th></tr><tr><td>1</td><td>General Technical Parameters</td><td>√</td><td></td><td>√</td></tr><tr><td>2</td><td>Manual/Catalogues/drawings for all components.</td><td></td><td>√</td><td></td></tr><tr><td>3</td><td>Technical details and test certificates of the component.</td><td></td><td>√</td><td>√</td></tr><tr><td>4</td><td>Instructions for use</td><td></td><td>√</td><td>√</td></tr><tr><td>5</td><td>Transport/shipping dimension drawing</td><td></td><td>√</td><td>√</td></tr><tr><td>6</td><td>QA & QC Plan</td><td>√</td><td>√</td><td>√</td></tr><tr><td>7</td><td>Routine, Acceptance and Type test Certificates</td><td>√</td><td>√</td><td>√</td></tr></table> <p>All the Documents and Drawings shall be in English Language.</p>	Sl. No	Description	For Approval	For Review Information	Final Submission	1	General Technical Parameters	√		√	2	Manual/Catalogues/drawings for all components.		√		3	Technical details and test certificates of the component.		√	√	4	Instructions for use		√	√	5	Transport/shipping dimension drawing		√	√	6	QA & QC Plan	√	√	√	7	Routine, Acceptance and Type test Certificates	√	√	√
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20.0	GUARANTEED TECHNICAL PARTICULARS	Clause wise compliance shall be provided by bidders																																								

		<p align="center"><u>(TO BE ENCLOSED WITH THE BID)</u></p> <p>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:</p> <table border="1"> <thead> <tr> <th>S.No.</th><th>Clause No.</th><th>Details of deviation with justifications</th></tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td></tr> </tbody> </table> <p>We confirm that there are no deviations apart from those detailed above.</p> <p>Seal of the Company:</p> <p align="right">Signature Designation</p>	S.No.	Clause No.	Details of deviation with justifications			
S.No.	Clause No.	Details of deviation with justifications						
21.0	SCHEDULE OF DEVIATIONS							