

## THERMIT WELDING - SPECIAL CONDITIONS OF CONTRACT.

1.0 These special conditions of contract, "The Regulations for Tenders and Contracts", "Conditions of Tender", "Tender agreement Form", "General Conditions of Contract, 1984" corrected upto the date of submission of Tender, The "Contract Labour Regulation and Abolition) Act, 1970" and "Central Rules 1971", "I.R.S. Specification serial No. T 19-1984 (for SKV process)" as amended from time to time, and specific drawings issued for the purpose of this work govern this contract. It may be noted that the "General Conditions of Contract" together with its correction slips is not attached to the tender form. It can be obtained from the office of the Chief Engineer, Construction, Southern Railway, Ernakulam Junction, on production of a cash receipt for the sum of Rs.50.00 paid to the Chief Cashier, Southern Railway, Park Town, Chennai 600 003 or any Station Master on Southern Railway, failing which it shall be deemed that the contractor is in possession of the same.

2.0 This contract shall be governed by those special conditions, Tender conditions, instructions to Tenderes, and the General conditions of contract (with the latest amendments). Wherever there is any conflict between the special conditions and the Tender conditions/Instructions to Tenderers or between the special conditions and the General conditions of contract, the special conditions shall prevail.

2.1 The Tenderer/Contractor is required to inspect the site of works and acquaint himself with the site conditions availability of approaches for transporting of materials, space and other factors relating to the works availability of labour etc. before quoting his rates.

2.2 The Tenderer/Contractor shall quote rate for each item of the Annexure. The number of joints to be welded are only approximate and intended only for the guidance and information of the Tenderer/Contractor.

2.3 Unless otherwise specified in the special conditons of the Contract, the accepted variation in quantity for each individual item of the contract would be upto 25% of the quantity originally contracted. The Contractor shall be bound to carry out the work at the agreed rates.

2.4 It shall be deemed that the contractor has fully examined the IRS Specifications Serial No.T.19-94 (with latest amendments) and therefore it has not been embodied in these Tender Conditions.

2.5 The work of welding, shall be carried out in situ in the track or in the cess. The Joints to be welded should be kept in position and brought to standard in line and level before the rails are welded.

2.6 The Contractor will ensure that the rails already linked are set to correct alignment and level before welding. He shall be responsible for the proper welding and filing of both faces of joints and their finish after welding and for the satisfactory results of the welding. After this is done, the contractor shall take full responsibility for the welding of rail joints and for the satisfactory quality of the weld.

2.7 The work consists transportation of the welding portions and the equipment from the nearest construction depot including supply of petrol required for preheating as well as the execution of the work at site by the Contractor. The work shall be carried out by the Contractor as per the provisions

of the contract by utilising the services of the qualified welding supervisor and welder provided by the Railways' at each site.

2.8 Arrangements has to be made by the Contractor to transport the materials, tools and plant required for the work by materials lorry or by road between the nearest Construction stores Depot and the site of the work as and when necessary. Railway's dip lorry/push trolley will be made available to the Contractor.

2.9 For Drilling holes in rails and cutting rails the Contractor should make his own arrangements for using drilling and cutting machines, rail cutting blades, drill bits etc. The department will not supply these items under usual terms. Cutting of rails by gas or by Jim crow is not permitted.

3.0 IRS Specifications for fusion welding:

Supply of portions and accessories must comply strictly in all respects with the provisions of the IRS specifications Sl. No. T.19/1994 for fusion welding of rail joints by the alumino thermic process. The portions should be duly inspected and passed by the Inspector, RDSO Lucknow, for this purpose.

4.0 The Railway will recommend to the concerned authorities for allotment of commercial grade aluminium to the Contractor at the rate of prescribed quantities per joint (ie. 2.8 kg. per joint for 52 Kg rails and 2.2 kg for 90 R rails). This will be made on receipt of the request from the Contractor. The responsibility for obtaining in time, the raw materials including those covered by the Railway's recommendations, will rest only with the Contractor. Non-supply of any raw materials will not be accepted as a valid reason for the delay in execution of the work, progress and completion as per the terms of the contract.

5.0 No Price escalation will be paid for the use of commercial Grade Aluminium in this Contract.

6.0 The Contractor shall post RDSO certified welding supervisors and welders for each site of work at the request of the Railway.

6.1 The welding supervisor and welder shall ensure quality of welding. Necessary unskilled labour will also be arranged by the contractor to execute all ancillary works connected with the welding.

6.2 The existing gaps at rail joints will have to be adjusted by the Contractor to get the correct clearance at the joints required for the welding as specified. The work should be day the rails are offered for welding. However if due to and not be responsible for any loss or damages to the Contractor. The Contractor shall deploy sufficient number of man power for carrying out this welding work depending on the availability on the cess also, duly making necessary arrangements to hold the rail in line and level. No extra payment will be made for the cess welding. No compensation shall be allowed for idle days, if any in between. The overall completion time and intermittent targets shall be strictly adhered to.

6.3 The work should be organised through a number of welding parties so as to obtain a progress of a minimum of 30 joints per day. If the works are to be carried under traffic block, necessary traffic blocks will be arranged by the Railway each day.

6.4 Working Season: The welding work should not be done during heavy rain. Work during light rains should be done in accordance with the local instructions or as directed by the Engineer-in-Charge.

6.5 The Contractor shall maintain proper liaison with the Railway and weld the joints.

6.6 The Contractor has to make necessary travel and accommodation arrangements for his materials, equipments etc. and staff including labour at his own cost.

6.7 Any statutory payments due to the staff and labour provided by the Contractor shall be to his account.

7.0 Any loss or inconvenience caused to the Railways by the Contractor shall be recovered from his bills and the loss etc. as assessed by the Engineer-in-charge shall be final.

8.0 The Railway officials in-charge will make necessary arrangements for the safe working of dip lorries or materials trolleys etc., and this will not relieve the contractor of the liability for indemnifying the Railway against all costs, damages and charges or expenses, in case the Railway has become liable to any costs, damages, charges or expenses due to the negligence of the Contractor. The decision of the Railway Administration as to whether or not there has been negligence on the part of the contractor shall be final and binding on the contractor.

9.0 Before the Contractor is permitted to operate this contract he must satisfy the Chief Engineer, that the welding process will be successful and will comply strictly in all respects with the provisions of the I.R.S. Specification serial No.T.19-94 (with latest amendments) for Fusion welding of rail joints by Specification have to be carried out. If results of the test repeated once only-fail to satisfy the Chief Engineer, the contract will be cancelled forthwith and the contractor will have no claim against the Railway on this account. The security deposit deposited by the Contractor will be forfeited in such cases. Rail pieces can be purchased from the Railway Administration. Also the cost of testing and charges incidental thereto such as transported on the supplier's/Contractor's premises if the same are adequately equipped for testing purpose.

10.0 The Contractor shall be responsible for the welded joints serving satisfactorily during the guaranteed period as specified in the specification. A sum equal to 1% of the total amount billed will be kept as a security deposit for the 2 years or the extended period of 3 years after execution of work as necessary, and for every joint failing during this period, 3 times the cost of welding of rail joint now being paid to the contractor will be recovered from his dues, if the joints are not rewelded by the Contractor at his cost.

11.0 If any of the joints welded rail or is rejected as unfit, the Contractor has to re-weld the joints free of cost including the cost of labour, etc. If the joints are not re-welded by the Contractor at his cost as aforesaid, the cost will be recovered from him for each such joint at thrice the cost of welding as being paid to him under this contract.

12.0 The welds shall be tested for acceptance ultrasonically and dimensionally in terms of clause 18.2 of IRS Specifications No.T.19-94.

### 13.0 PATENTS:

13.1 The Contractor shall not directly or indirectly use any invention for the time being the subject of letters patent so as to infringe such patents or so as to involve the Railway in any infringement thereof and the Contractor shall hold the Railway harmless and keep the Railway indemnified against all cost, damages, charges or expenses, arising out of or in connection with any such infringements.

14.0 The testing charges for estimation of Aluminium content by spectrographic method in thermit steel at the rates as may be fixed by the RDSO/RITES from time to time should be borne by the Contractor wherever such estimation to Aluminium is to be done by RDSO/RITES.

15.0 No sum shall be considered as earned by or due to the Contractor in respect of any work until its final and satisfactory completion has been established as far as can be judged at the time of making the final measurement, but on account payments may be made to him, from time to time on account of the work as per Railway's code Rules depending upon the progress from time to time Engineer shall be proper, having regard to the progress of the work and payment made to the Contractor in accordance with such measurements.

### 16.0 THERMIT WELDING (Supplementary instructions):

16.1 Clauses 14 to 16 of IRS/T.19-1994 pertaining to execution, guarantee and acceptance test shall be strictly followed.

However, special attention is invited to clause 16.2 pertaining to USFD testing of the weld which is reproduced below.

"All the welded joints shall be ultrasonically tested by the Contractor as per the procedure given at Annexure - I.

This testing shall be completed as early as possible after welding but before the Contractor's welding team leaves the welding site. All the joints which are found to be defective and classified as D1 (due for removal) shall be cut and re-welded by the firm using their portion, equipments, labour and consumables. Where one bad joint is required to be replaced by two new joints, the entire cost of both the joints shall be borne by the firm. Such re-welded joints shall again also be tested ultrasonically and if found defective shall again be cut and re-welded free of cost".

16.2 The above clause is further clarified/amplified as under.

"The Contractor will ensure that the joints welded are tested by USFD as soon as the welding work is completed.

17.0 The despatch of portions to the site by the Contractor will be regulated so as to be commensurate with the progress in the execution of the work as advised by the Engineer-in-charge.

18.0 Unless otherwise specified in the special conditions of the contract, the accepted variation in quantity for each individual item of the contract would be upto 25% of the quantity originally contracted. The Contractor shall be bound to carry out the work at the agreed rates.

20.0.0 The price to be quoted by the tenderer should take into account the credit availed on inputs under the MODVAT scheme introduced, with effect from 1.3.1986. The tenderers should give a declaration that any set offs in respect of duties and inputs in the price quoted by him as admissible under law is being totally and unconditionally passed on to the purchaser.

20.0.1 The Contractor shall be responsible for anti-larval work at his cost during progress of works as may be prescribed by the Engineer on the advice of the Railway Medical Authority and where the use of insecticides is involved, it shall be made in accordance with the provision of the Act and Rules in this behalf, at the cost of the Contractor, who shall also be solely responsible for any acts or omissions under the provision of the aforesaid rules.

21.0 The Bonded Labour System (Abolition) Ordinance 1975 would apply to the present contract. The Contractor shall duly observe the provisions thereof.

#### APPENDIX - I

##### DESCRIPTION OF VARIOUS WORKS TO BE DONE FOR THE WELDING OF JOINTS.

1. Removal/ loosening of fish plates and bolts, steel keys/ pandrol clips, liners, grooved rubber pads etc., for welding, refixing the removed/or loosened keys, fish plates and bolts under protection of track, such protection being arranged by the Railway. The Contractor has to provide the required man power required.
2. Respacing the required number of sleepers on either side of the joint to be welded and lifting the rail ends to the extent Prescribed by the Inspector- in- Charge to correct alignment and level and providing wooden blocks/packing underneath the rail where necessary.
3. Scraping and cleaning the rail ends to remove dust and rust with approved wire brushes with all Contractor's cleaning materials and tools.
4. Conveying pre-fabricated moulds to the place of welding, fixing the moulds in the rail joints and luting all round the mould with wet luting clay leaving no gaps or holes taking care that the luting remains in tact till the welding is completed.
5. Pre-heating the rail ends with Contractor's petrol using the pressure tank, vaporiser etc., to the temperature specified by the site-in-charge duly inflating the tank to maintain the required pressure and shifting the tanks, vaporiser and other accessories from joint to joint as the work progresses.
6. Erecting the special crucibles and stand near the joint to be welded, charging the crucibles with portion and igniting the charge and tapping into the mould as per the direction of site in charge with all Contractor's labour and leading the same from joint to joint as the work advances.
7. Removing the crucibles after tapping the portion, removing the mould after allowing the molten steel to become sufficiently hard and chipping off the excess materials in the prescribed time with all Contractor's labour as per direction of the site in charge duly ensuring safe and timely passage of trains after the execution of work.
8. Respacing the sleepers after completing the welding work and rectifying any minor alignment or surface defects thereof.



9. Punching the month and year, firm's (supplier of portions) insignia serial number of joints and where necessary with Railway's punch as directed by the site-in-charge as per T.19-1984 clause No.7 of IRS specification for fusion welding of rails by Alumino Thermic Process.

10. Deploying necessary watchman at site of work for safe custody of materials during execution.

11. Maintaining approved first aid equipment at site of work to be provided by the Contractor.

#### SPECIAL CONDITIONS RELATING TO MOBILE FLASH BUTT WELDING

##### 1.0 SCOPE OF WORK :

1.1 The work involves conducting flash butt welding at site on gauge conversion, doubling, new lines and traffic facility projects, over Southern Railway using Contractor's own labour, flash butt welding plant, infrastructures and all other tools and plants.

1.2 The Contractor will have to make his own arrangement for loosening/removing of fittings, movement of rail panels, for creating gaps, end cleaning of rails, welding and stripping of rail joints, grinding and final finishing of rail joints.

1.3 Contractor will arrange adequate labour, competent supervision, grinding, welding, stripping, free end post straightening machine as required for the work. All the machines, plants and equipments will be arranged and provided by the contractor at his own cost.

1.4 Welding process and methodology will be governed by the "Manual for Flash Butt Welding of Rails (1996 issued by the RDSO, Lucknow).

1.5 Contractor shall enclose Testing Specifications etc., and also complete technical data with photograph of the type of Mobile flash butt welding plant he proposed to use.

1.6 The mobile unit will be required to be commissioned within 45 days from the date of acceptance.

##### 2.0 CRITERIA FOR CONSTRUCTION/CODES & SPECIFICATIONS :

2.1 a) The specifications mentioned in special conditions regarding Site Data and specifications shall prime governing.

b) Where there is conflict between IRS & IS Specifications, IRS specifications shall prevail.

c) Where there is no provision of specifications in IRS, the IRC conditions shall be followed.

d) The decision of / Chief Engineer/Construction of the project shall be final and binding in the interpretation of the clause of the codes of practice and specifications under the Special conditions regarding Site Data and Specifications of this tender and no claim whatsoever shall be entertained on this account by Railways. Any difference of opinion between Engineer and contractor shall be referred to Engineer-in-charge.

e) The appeal against decision of Engineer-in-charge shall lie with Chief Engineer/Construction whose decision shall be final and binding.

f) All above sub items shall be deemed to be "excepted matters".

2.2 Apart from the basic data, specifications etc all items of works shall be governed by the followed codes as revised/corrected/amended up to the time of submission of the tender/negotiated rates for acceptance.

1) Indian Railway Manual for Flash Butt Welding of rails - 1996 with up-to-date correction slips issued by RDSO/Lucknow.

2) Southern Railway Engineering Department General conditions of Contract and instructions to tenderers and Standard form of Contract.

3) Southern Railway Engineering Department Standard Schedule of Rates with errata and correction slips up-to date.

4) Southern Railway Engineering Department Standard Specifications for material and works, with errata and correction slips up to date.

5) Indian Railways Schedule of dimensions of Broad Gauge.

6) Indian Railway Permanent Way Manual.

7) Indian Railways Works Manual.

NOTE :

a) Latest edition including correction slips as on date of submission of tenders/negotiated rates shall govern.

b) The list given above is by no means exhaustive. All IRS Codes pertaining to work shall be applicable.

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