# Annex No. 5B to the Tender Documentation – Technical Conditions

**“Furnaces and accessories equipment for strip casting technology”**

Under these Technical Conditions, the Contracting Authority specifies the characteristics of the requested subject of fulfilment, i.e. the **minimum** technical requirements that the contractor’s subject of fulfilment needs to meet. If a contractor offers a subject of fulfilment that does not meet any of the technical conditions, it shall be excluded from the tender on account of not meeting the tender conditions.

In the forms of the “Technical Conditions” below, the participant shall specify whether the subject of fulfilment offered by the contractor meets the requirements specified in the columns – in the “Compliant” column, the contractor shall tick off the applicable option: “Yes” if the fulfilment meets the requirement, “No” if the fulfilment does not meet the requirement. If the participant selects “No” in the “Technical Conditions” at least in one case, they shall be excluded from the procurement procedure on account of non-compliance. If the participant specifies “Yes” but the tender evaluation reveals that the fulfilment does not meet the requirement, the participant may be excluded on account of non-compliance and a breach of the tender conditions. If the participant does not specify “Yes” nor “No”, they may be excluded for non-compliance with the tender conditions. In the “Contractor’s offer” column, the contractor shall specify via the Word fill-in forms the particular parameter value (in the same units as those of the requirement) or a more detailed specification of the fulfilment offered by the Contractor in relation to the requirement. If the participant does not fill in the “Contractor’s offer” column and indicates “Yes” in the “Compliant” column, the fulfilment offered by the participant shall be deemed to be compliant with the Contracting Authority’s requirement specified in the “Parameters” column. The participant shall fill in the “Technical Conditions” according to the instructions specified therein, including the kind and type of fulfilment, if any. The contractor is obliged to fill in the kinds and types of fulfilment and include it as an annex to the Contract for Work, i.e. the contractor shall be obliged to deliver the exact same fulfilment it made a commitment to deliver in its tender.

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| **Metal distribution system** | |  |
|  | **Compliant** | **Contractor’s offer** |
| Delta temp. of melt transfer from melting to holding furnace max. 20 °C (measurement in exit from melting furnace and entrance to holding furnace) | YES / NO |  |

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| **Melting furnace** | |  |
|  | **Compliant** | **Contractor’s offer** |
| Capacity of furnace 25 T | YES / NO |  |
| Melting system – Natural Gas regenerative burners | YES / NO |  |
| Power of burners is max. 2,9 MW | YES / NO |  |
| Melt rate min. 2,51 without stirrer and 2,59 T/hod with stirrer to 750°C | YES / NO |  |
| Melt transfer via hydraulic tilting system | YES / NO |  |
| Time of Transport of melt from melting furnace into holding furnace max. 15 min | YES / NO |  |
| Energy consumption per one melt cycle max. 560 kWh/T | YES / NO |  |
| Possible amount of charged scrap up to min. 90 % | YES / NO |  |
| Possible amount of VOC in total charge mix up to min. 3 % | YES / NO |  |
| Refractory delivery and on-site installation is part of delivery of furnaces | YES / NO |  |
| Guaranteed Lifetime of Refractory is at least 3 years | YES / NO |  |
| Rotary salt flux injector is implemented to furnaces | YES / NO |  |
| Detail engineering of refractory including bill of material to be handed over | YES / NO |  |
| Air cooled camera viewing into the melting furnace | YES / NO |  |
| Oxygen lance or Incinerator | YES / NO |  |

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| **Holding furnace** | |  |
|  | **Compliant** | **Contractor’s offer** |
| Capacity of furnace 25 T | YES / NO |  |
| Melting system – electricity (spirals) | YES / NO |  |
| Melt transfer via hydraulic tilting system | YES / NO |  |
| Electrical Energy consumed during heating cycle is max 11.16 kWh/T | YES / NO |  |
| Electrical Energy consumed during holding cycles is max 84 kWh/h | YES / NO |  |
| Refractory delivery and on-site installation are part of delivery of furnaces | YES / NO |  |
| Guaranteed Lifetime of Refractory is at least 3 years | YES / NO |  |
| Detail engineering of refractory including bill of material to be handed over | YES / NO |  |
| Molten metal level in troughs will be ± 3.0 mm while casting | YES / NO |  |

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| **Charging machine** | |  |
|  | **Compliant** | **Contractor’s offer** |
| Charging into the furnace is fully automated | YES / NO |  |
| Movement of charging machine is on rails | YES / NO |  |
| Possibility to share charging machine between 35 MT and 25 MT furnaces | YES / NO |  |
| Charging time (Opening furnace doors-> Charging->Closing furnace doors) is <2 min | YES / NO |  |
| Maximum possible travel speed is 45 m/min | YES / NO |  |

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| **Skimming machine** | |  |
|  | **Compliant** | **Contractor’s offer** |
| Skimming is fully automated | YES / NO |  |
| Movement of skimming machine is on the rails | YES / NO |  |
| Pressing of dross in the furnace | YES / NO |  |
| Possibility to share skimming machine between 35 MT and 25 MT furnaces | YES / NO |  |
| Skimming cycle time is < 10 min | YES / NO |  |
| Maximum possible travel speed is 45 m/min | YES / NO |  |

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| **Stirrer** | |  |
|  | **Compliant** | **Contractor’s offer** |
| Electricity consumption of stirrer must be depending on type of stirrer EMS to 100 kW and PMS to 15 kW | YES / NO |  |
| EMS with water cooling or PMS with air cooling | YES / NO |  |
| Shared between 2 melting furnaces on rails | YES / NO |  |

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| **Control system** | |  |
|  | **Compliant** | **Contractor’s offer** |
| At least 30 % of free CPU resources | YES / NO |  |
| Remote control | YES / NO |  |
| History of trends for a period of 3 months | YES / NO |  |
| History of alarms for a period of 3 months | YES / NO |  |
| Uniform graphical visualisation of all control panels | YES / NO |  |
| Integration of strip casting technology | YES / NO |  |
| Compatibility with master systems and following technologies | YES / NO |  |

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| **Other** | |  |
|  | **Compliant** | **Contractor’s offer** |
| Number of furnace operators – max. 3 operators, for 2 Melting and 1 Holding furnaces including filling of charging machine and skimming/alloying | YES / NO |  |
| The total area of all the pieces of equipment complies with the space requirements – see Annex\_3B\_TD\_Technical\_specifications\_furnaces\_for\_strips.docx | YES / NO |  |
| The equipment complies with all the technical conditions specified in Annex\_3B\_TD\_Technical\_specifications\_furnaces\_for\_strips.docx | YES / NO |  |
| CE declaration of conformity | YES / NO |  |

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| **Scored sub-criteria of the partial evaluation criterion “Technical Parameters”** | |  |
|  | **To be added** | **Contractor’s offer** |
| The deadline for providing construction readiness documentation from the contract conclusion | less than 30 days inclusive – 60 p.  more than 30 days but less than  60 days inclusive – 20 p.  more than 60 days but less than  75 days inclusive – 5 p.  more than 75 days – 0 p. | ….. days |
| In order to evaluate the tenders in connection with this sub-criterion, the Contracting Authority shall use a scoring scale of 0, 5, 20, 60 points as specified above. Each individual tender shall be awarded a score as per the above table. The most favourable tender under the given sub-criterion shall mean the tender with the shortest term of delivery of the construction readiness documents from the conclusion of the contract. | | |
| The manufacturer guarantees technical support for discontinued components for at least (alternatives for obsolete components) | less than 5 years inclusive – 0 p.  more than 5 years but less than  10 years inclusive – 5 p.  more than 10 years – 15 p. | ….. years |
| In order to evaluate the tenders in connection with this sub-criterion, the Contracting Authority shall use a scoring scale of 0, 5, 15 points as specified above. Each individual tender shall be awarded a score as per the above table. The most favourable tender under the given sub-criterion shall mean the tender with the longest guaranteed technical support for discontinued components (alternatives to obsolete components). | | |
| The manufacturer guarantees availability of spare parts for all components for at least | less than 5 years inclusive – 0 p.  more than 5 years but less than  10 years inclusive – 5 p.  more than 10 years – 15 p. | ….. years |
| In order to evaluate the tenders in connection with this sub-criterion, the Contracting Authority shall use a scoring scale of 0, 5, 15 points as specified above. Each individual tender shall be awarded a score as per the above table. The most favourable tender under the given sub-criterion shall mean the tender with the longest guaranteed availability of spare parts for all components. | | |
| The manufacturer will use for combustion of VOC in furnaces | Incinerator – 0 p.  Oxygen lance – 50 p. | …………….. |
| In order to evaluate the tenders in connection with this sub-criterion, the Contracting Authority shall use a scoring scale of 0 or 50 points as specified above. Each individual tender shall be awarded a score as per the above table. The most favourable tender under the given sub-criterion shall mean the tender with the offered oxygen lance for combustion of VOC in furnaces. | | |
| The manufacturer will use stirrer with | Electromagnet (EMS) technology – 0 p.  Permanent magnet (PMS) technology – 50 p. | …………….. |
| In order to evaluate the tenders in connection with this sub-criterion, the Contracting Authority shall use a scoring scale of 0 or 50 points as specified above. Each individual tender shall be awarded a score as per the above table. The most favourable tender under the given sub-criterion shall mean the tender with the offered stirrer with permanent magnet (PMS) technology. | | |
| Molten metal level in troughs will be adjusted | more than ± 2.5 to ± 3.0 mm inclusive while casting – 0 p.  more than ± 1.5 to ± 2.5 mm inclusive while casting – 15 p.  less than ± 1.5 inclusive while casting – 30 p. | ….. mm |
| In order to evaluate the tenders in connection with this sub-criterion, the Contracting Authority shall use a scoring scale of 0, 15, 30 points as specified above. Each individual tender shall be awarded a score as per the above table. The most favourable tender under the given sub-criterion shall mean the tender with the least adjusted molten metal level in troughs while casting. | | |
| Guaranteed lifetime of refractory in Melting furnaces is | more than 3 years inclusive but less than 4 years  – 0 p.  more than 4 years inclusive but less than 5 years – 20 p.  more than 5 years inclusive – 40 p. | ….. years |
| In order to evaluate the tenders in connection with this sub-criterion, the Contracting Authority shall use a scoring scale of 0, 20, 40 points as specified above. Each individual tender shall be awarded a score as per the above table. The most favourable tender under the given sub-criterion shall mean the tender with the longest guaranteed lifetime of refractory in Melting furnaces. | | |
| Guaranteed lifetime of refractory in Holding furnaces is | more than 3 years inclusive but less than 4 years  – 0 p.  more than 4 years inclusive but less than 5 years – 20 p.  more than 5 years inclusive – 40 p. | ….. years |
| In order to evaluate the tenders in connection with this sub-criterion, the Contracting Authority shall use a scoring scale of 0, 20, 40 points as specified above. Each individual tender shall be awarded a score as per the above table. The most favourable tender under the given sub-criterion shall mean the tender with the longest guaranteed lifetime of refractory in Holding furnaces. | | |
| **TOTAL SCORE** | ……….. p. (max 300 p.) | |

I/We, the undersigned,       declare upon my/our honour that the aforementioned data are correct and that the contractor      , if selected by the Contracting Authority for the Public Contract, shall deliver the goods exactly according to the technical and business conditions set out in its tender.

In     date

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Name and position of the contractor’s authorized person

Stamp and signature of the contractor’s authorized person