



ArcelorMittal

APPENDIX NO. 5

TO THE REQUEST FOR QUOTATION NO. 01/211/2021

TECHNICAL SPECIFICATION

for the supply, installation and commissioning of the system for detection of the position of coils and wagons on the delivery track for the needs of ACE at the Cold Rolling Mill - Krakow”

The subject-matter of the contract indicated in these specifications relates to the project entitled “*Development of an optimum logistic model and cooling model for the storage area upstream the pickling line in the Cold Rolling Mill of ArcelorMittal Poland S.A.*” (project no. POIR.01.02.00-00-0211/17-00), co-funded under Measure POIR.01.02.00 “Sectoral R&D programmes” of the Smart Growth Operational Programme 2014 - 2020 co-financed by the European Regional Development Fund.

All purchases, services and supplies under DDP INCOTERMS 2010 that are subject to this bid must be included and cooperate with the existing infrastructure and equipment in the Company and must meet the same technological standards. Therefore, the need to preserve the same technological conditions and to maintain unification of devices resulting from the extension of the existing infrastructure determined the records in this specification. The applied records shall be justified by the need to ensure efficient project completion. The indications regarding expected technical parameters as well as the indications regarding specified types and manufacturers' names shall be general and refer solely to exemplary designations of equivalent products and shall not be the only acceptable solution. On this basis the Buyer permits equivalent solutions.

The bid must be complete in all respects and must contain all components / equipment required for correct construction, operation and maintenance. The Bidder undertakes to familiarise itself with this specification and make sure that the devices are technically feasible, and to accept full responsibility for the guaranteed operation of devices to be delivered in terms of their capabilities, parameters as well as smooth and reliable functioning.

ArcelorMittal Poland S.A.
KRAKÓW

November 2021

TABLE OF CONTENTS

CHAPTER I	4
1. FOREWORD	4
1.1. INTRODUCTION	4
1.2. PURPOSE OF THE PROJECT	4
1.3. TARGET	4
1.4. CONTENTS OF THE SPECIFICATION	4
1.5. GENERAL REQUIREMENTS	5
2. ENVIRONMENTAL DATA	5
3. MEASUREMENT UNITS, STANDARDS, NORMS AND REGULATIONS	5
4. TECHNICAL INFORMATION	5
5. SCOPE OF THE BIDDER'S WORKS	5
5.1. SUBJECT-MATTER OF THE PROJECT	5
5.2. DETAILED SCOPE OF THE PROJECT	6
6. TECHNICAL CAPABILITIES OF THE BIDDER	6
7. WORKS COMPLETION TIME	6
7.1. DELIVERY OF THE SCOPE OF WORKS	6
7.2. WORK SCHEDULE	6
7.3. GENERAL REQUIREMENTS	7
8. AVAILABILITY AND INTERCHANGEABILITY	7
9. QUALITY, SUPERVISION, TRAININGS, WORKMANSHIP, COMMISSIONING, TESTS AND INSPECTIONS	7
9.1. QUALITY	7
9.2. SUPERVISION	7
9.3. WORKMANSHIP	8
9.4. COMMISSIONING	8
9.5. HAND-OVER TO OPERATION	9
10. PAINTING	9
11. PRICE	9
12. PERFORMANCE GUARANTEE	9
13. GUARANTEE OF SUPPLY AND WORKMANSHIP QUALITY	10
14. SAFETY OF PEOPLE, WORKS AND OFFERED SUPPLIES	10
14.1. PRE-CONDITIONS	10
14.2. TERMS AND CONDITIONS OF THE BID	11
14.3. TERMS AND CONDITIONS OF PERFORMANCE	11
15. REQUIREMENTS OF THE OWNER FOR THE BID	12
15.1. GENERAL REQUIREMENTS	12
15.2. REQUIREMENTS FOR TECHNICAL BID	12
16. LANGUAGE OF THE CONTRACT	13
17. INFORMATION, EXPLANATIONS AND AGREEMENTS	13
17.1. PERSONNEL OF THE BIDDER/CONTRACTOR	13
17.2. PERSONNEL OF THE OWNER	13
17.3. INFORMATION, CORRESPONDENCE, EXPLANATIONS AND AGREEMENTS	13
18. OTHER	13
18.1. WASTE PRODUCTION AND RECYCLING	13
18.2. MEASUREMENTS	14
18.3. PROTECTION OF CONTRACTOR'S PROPERTY	14
18.4. ENTRY/EXIT OF THE BIDDER'S/CONTRACTOR'S PERSONNEL AND MATERIALS TO/FROM THE SITE	14
18.5. ADDITIONAL CONDITIONS OF PROJECT EXECUTION	15
1. ENVIRONMENTAL DATA	18
1.1. LOCATION	18
1.2. ENVIRONMENTAL DATA	18
2. STANDARDS, NORMS AND REGULATIONS	19
2.1. Formats of documentation files - standards applicable in ArcelorMittal Poland S.A.	19

3. BASIC DOCUMENTATION	19
CHAPTER III - SCOPE OF THE BIDDER/CONTRACTOR'S WORKS	20
1. COIL AND WAGON POSITION DETECTION SYSTEM.....	20
2. DOCUMENTATION REQUIRED DURING PROJECT EXECUTION	25
3. GUARANTEED PARAMETERS.....	26

CHAPTER I

1. FOREWORD

1.1. INTRODUCTION

"ArcelorMittal Poland" S.A. (hereinafter referred to as **the Owner**) operates the integrated steel mill in Kraków Division, in which full steel making cycle takes place, starting from raw material facilities (coke plant, BF, BOF Plant) to production of finished rolled products.

The **Owner** is interested in the increase in production of Cold Rolling Mill, therefore it is required to increase storage capacity for coils upstream the pickling line and ensure required flow capacity.

1.2. PURPOSE OF THE PROJECT

The purpose of the project is a purchase, installation and commissioning of:

- System for detection of coil and wagon position on the delivery track, hereinafter referred to as Coil Detection System or Detection System.

1.3. TARGET

Hot-rolled sheet coils - being processed by the Pickling Plant - shall be supplied by railway transportation directly from the Hot Rolling Mill. Unloading and delivery of the coils at the production line entrance shall be performed with the use of two Q40t cranes. All transport operations shall be ultimately carried out in automatic mode with the possibility of manual control from the cabin or radio terminal.

For this purpose, the detection system must be able to determine precisely the position of coils and wagons on the delivery track for the automatic crane.

Basic data of transported coils:

- Coil diameter
 - Min.: 1000 mm
 - Max.: 2300 mm
- Coil width
 - Min.: 700 mm
 - Max.: 2100 mm
- Coil max. weight: 35.0 t
- Temperature of transported coil: max. 450°C

1.4. CONTENTS OF THE SPECIFICATION

This Specification contains environmental data of the Owner's location in Krakow, required technical standards, necessary technical data, the Bidder's scope of works, the Buyer's/Owner's rights, requirements for technical capabilities of the Bidder, required availability, interchangeability, quality and safety, and other information, which are required for the Technical Bid (e.g. performance guarantee).

1.5. GENERAL REQUIREMENTS

- The Bid submitted by the Bidder shall comply with the requirements of this Specification and price quoted in a separate, sealed envelope addressed as indicated in the Request for Quotation.
- The Bid shall be complete, and all activities and equipment required for proper Project execution shall be specified by the Bidder in the Bid.
- The Bidder shall familiarise itself with this Specification and attached documentation. Having made sure that delivery, installation and commissioning is feasible, it will take full responsibility for the guaranteed level of operation under the project.
- The Bidder shall submit the bid in accordance with the tender documentation and the on-site inspection. **The Bidder should also foresee all additional works not particularly listed in this Specification.**

2. ENVIRONMENTAL DATA

Local environmental data for the design purposes are provided in CHAPTER II ITEM 1 of this specification.

3. MEASUREMENT UNITS, STANDARDS, NORMS AND REGULATIONS

The Bidder shall observe standards, regulations and other provisions of the law, referred to in this Specification with respect to completion of delivery and services in accordance with quality assurance rules and meeting delivery and performance deadlines. All other technical requirements shall comply with standards of environment pollution control. List of applicable measurement units, norms, standards and regulations as well as the rules of their application by the Buyer are given in CHAPTER II ITEM 2 of this specification.

4. TECHNICAL INFORMATION

List of basic documentation is described in CHAPTER II ITEM 3. Detailed technical and technological requirements are described in CHAPTER III of this specification.

5. SCOPE OF THE BIDDER'S WORKS

5.1. SUBJECT-MATTER OF THE PROJECT

The subject-matter of the project is:

- 5.1.1 Delivery, installation, connection and start-up of the coil and wagon detection system on the delivery track.
- 5.1.2 Location of power and communication (Ethernet) cabling between scanners and points indicated in the bay.

5.2. DETAILED SCOPE OF THE PROJECT

The detailed scope of works and requirements are described in CHAPTER III of this Technical Specification.

6. TECHNICAL CAPABILITIES OF THE BIDDER

- The requirements are specified in item IV.1. of the Request for Quotation.

7. WORKS COMPLETION TIME

7.1. DELIVERY OF THE SCOPE OF WORKS

Full scope of works and supplies, as detailed in item 5 of this Technical Specification:

- Full project scope - within max. **6 (six months)**, from the date of signing the agreement.

7.2. WORK SCHEDULE

7.2.1. PRELIMINARY WORK SCHEDULE

A preliminary work schedule comprising periods of time assumed for the completion of stages of the Project shall be attached to the Bid:

- Submission of the technical documentation for Owner's approval.
- Completion of individual supplies that are of key importance to meet the installation and project completion deadlines,
- Take-over of the work site and start of the installation works,
- Installation of the detection system including wiring,
- Electrical and functional start-up and calibration of the detection system, checking the equipment availability, position adjustment,
- Submission of a complete as-built documentation along with the required operating documentation to the Owner.

After the delivery, the detection system will be subject to 1-month commissioning, including cold and hot commissioning, followed by a 30-day test of system availability. The conditions for the commissioning and availability test are described in section 9.5.

This schedule should also include a description (specification) of tasks forming-critical path of the Project and its milestones. Scheduled deadlines shall be guaranteed by the Bidder/Contractor and shall be subject to commercial terms and conditions set forth in the Commercial Bid.

Local requirements for the installation of the detection system in the Z-Y aisle, in particular, production conditions and health & safety requirements must be taken into account.

7.2.2. DETAILED SCHEDULE

Detailed work schedule shall be submitted to the Owner for approval in the framework of performance of the Bidder's/Contractor's scope of work, with consideration of the stages of erection site organisation and securing, performance of all activities related to admission of the Bidder/Contractor by the Health and Safety services to work at the Owner's site, completion of purchases, prefabrication, dismantling and installation, tests and commissioning, hand-over for operation and preparation of as-built documentation. This schedule shall also comprise description (list) of tasks forming critical path of the Project.

7.3. GENERAL REQUIREMENTS

The Bidder/Contractor agrees to create work schedules in compliance with the Owner's requirements and standards (MS Project).

8. AVAILABILITY AND INTERCHANGEABILITY

All working parts shall be able to be prepared for operation, inspection, lubrication and replacement/maintenance during a minimum downtime. All similar parts of the equipment shall be interchangeable.

9. QUALITY, SUPERVISION, TRAININGS, WORKMANSHIP, COMMISSIONING, TESTS AND INSPECTIONS

9.1. QUALITY

- Apart from safety, quality issues will be of the highest priority to the Owner at all stages of Project execution.
- Materials and workmanship shall be of high quality, suitable for the intended purpose of application and compliant with practices and standards set forth in this Specification. All components shall undergo inspection according to Quality Assurance Program, which shall be submitted by the Bidder, unless the Buyer has waived it by submission of a written statement.
- The Bidder/Contractor shall submit to the Owner all required quality certificates (including mandatory quality certificate 3.1 according to PN-EN 10205:2006, or equivalent, for materials used and welding works completed).

9.2. SUPERVISION

The Bidder/Contractor shall appoint a coordinator (Site/Project/Work Manager) responsible for supervision of proper course of works in all its aspects and at all stages of execution (quality, progress, on-time performance, etc.) and for cooperation and contacts with the Owner on an ongoing basis.

9.3. WORKMANSHIP

- The Contractor shall perform the works in accordance with technical conditions of performance and acceptance of works, effective technical regulations, norms and standards, safety at work and fire prevention regulations and agreed Detailed Work Schedule.
- The offered materials and workmanship shall be of high quality, suitable for the intended purpose of application and compliant with practices and standards set forth in this Technical Specification and in the Detailed Engineering documentation. All components shall undergo inspection (according to Quality Assurance Program which shall be submitted by the Bidder) unless the Owner has waived it by submission of a written statement.
- The Contractor shall provide all basic and auxiliary materials required to perform the works along with necessary tools and special equipment.
- Upon completion of the works, the Contractor shall submit to the Owner the set of operating and maintenance manuals along with functionality test and measurement reports and complete as-built documentation for installed equipment.

9.4. COMMISSIONING

9.4.1. Cold commissioning

The so called "cold" (partial) commissioning of the equipment shall be carried out upon completion of works at a given part of the project, removal of possible defects and irregularities, performance of additional works (if any), which resulted to be necessary during the execution of project-related works, fulfilment of the Owner's health and safety requirements, notification by the Contractor of the readiness to cold commissioning, and after agreeing the terms and conditions of cold commissioning with the Owner. All functional tests shall be carried out during cold commissioning. Any possible defect or irregularity shall be removed during cold commissioning.

9.4.2. Hot commissioning

The so-called "hot" commissioning of the equipment shall be carried out upon successful completion of all works, completion of cold (partial) commissioning, removal of possible defects and irregularities, execution of additional works (if applicable), which resulted to be necessary during the execution of project-related works, execution of functional tests, fulfilment of the Owner's health and safety requirements, notification by the Contractor of the readiness to hot commissioning, and after agreeing the terms and conditions of hot commissioning with the Owner.

Hot commissioning shall be carried out for 10 working days using AMP software. The software shall be prepared by AMP and remains the sole property of AMP. System calibration shall be performed during the hot commissioning. During hot commissioning, it may be necessary to reposition the scanner in terms of its scanning area (adjustment of mounting angles of the device). During hot commissioning the Contractor shall make necessary adjustments as requested by AMP.

9.4.3. Availability tests

- The availability test shall be performed after the hot commissioning is completed.
- The expected duration of the availability tests of the detection system is 30 days, starting from the date of the Contractor's notification of the equipment readiness for testing. In particular, during and after testing, the scanning area must not change.

9.5. HAND-OVER TO OPERATION

- Hand-over to operation shall be performed after successful completion of availability tests and after signing the Final Acceptance Certificate (FAC).
- FAC for the whole Project shall be signed only upon reaching all guaranteed parameters (specified in **CHAPTER III item 5** and in **technical documentation**) by the equipment delivered by the Bidder/Contractor and required parameters in accordance with the measurement procedure of technical and technological operation parameters of the detection system agreed with the Owner and upon completion of 30-day availability tests.

10. PAINTING

- The detection system and its additional equipment shall be protected from corrosion and heat (due to high ambient temperature). The Bidder/Contractor shall submit a proposal of applying suitable primers and finishing coats for individual devices, depending on the conditions in which the detection system and its additional equipment operate.
- Finishing coat for the structure - RAL 1028 colour.
- **Final thickness of protective coatings shall be 180-200 µm.**

11. PRICE

- The Bid price **shall not be quoted** in the Technical Bid.
- The Bid price shall be quoted by the Bidder/Contractor in the Commercial Bid.
- The Bid price shall cover all services (labour consumption), components (materials and parts), equipment (machines and special tools) and other expenditures (e.g. costs of trainings).
- The Bid price shall comprise costs of adaptation of employees and equipment to comply with OHS standards applicable in AMP.

12. PERFORMANCE GUARANTEE

- The Bidder/Contractor guarantees high quality of workmanship of engineering solutions and of materials selected for engineering solutions and high quality of workmanship of individual parts and combined components of the equipment, which is offered in accordance with the requirements of guaranteed parameters set forth in this Technical Specification.

- Performance guarantee (see below) shall comprise individual components and systems (including electric equipment) with respect to their accuracy, ratings/productivity and integrated operation. Performance guarantee shall also comprise individual electric and safety components and systems with respect to their accuracy, ratings/productivity and integrated operation.
- The Guaranteed parameters are specified in **CHAPTER III item 5**.
- The period of guarantee for the whole Project shall start at the day of PAC signing. Minimum period of guarantee for supplies and services expected by the Owner is of 24 months.

13. GUARANTEE OF SUPPLY AND WORKMANSHIP QUALITY

- Delivered solutions shall be free of faults and defects arising from the use of defective materials and/or parts and/or from poor workmanship quality. The Bidder/Contractor shall guarantee that delivery will be effected on time and in a form compliant with the contract awarded.
- The Bidder/Contractor shall guarantee that state-of-the-art technical and engineering solutions will be applied.

14. SAFETY OF PEOPLE, WORKS AND OFFERED SUPPLIES

Safety issues shall be the **highest priority** for the Owner at all stages of the Project execution.

14.1. PRE-CONDITIONS

- The most important consideration during performance of works within the scope of the Project shall be their compliance with applicable regulations concerning the safety of persons and work. The Bidder/Contractor shall make all personnel participating in the Project execution (including personnel of subcontractors accepted by the Owner) familiar with the documents concerning safety at work on the Owner's premises, submit these employees to initial Health and Safety trainings conducted by Occupational Health and Safety Department of the Owner. Knowledge of AMP OHS requirements shall be verified by OHS examination for the contractors carried out by the Owner. Positive result shall be certified in the Safety Passport. The Contractor shall obtain the Passports entitling trained employees to perform work on the Owner's premises.
- Prior to commencement of the works the representatives of the Contractor shall submit proof of valid medical examinations in the form of appropriate document (certificate confirmed by signature and stamp of physician) and shall be trained in the scope of OHS rules and regulations effective at the Owner's site (including Safety Passports for employees of contractors and subcontractors and familiarity with the contents of the Owner's Health and Safety Agreement and standards).
- The approximate time for employees of a third-party Contractor and subcontractors to obtain Owner's OHS Department approval and be allowed to work at the Owner's site is approximately 10 working days, which shall be taken into account in the cost estimate and work schedule. Procedure of obtaining the foregoing authorisation is described in detail in **Health and Safety Agreement**.

14.2. TERMS AND CONDITIONS OF THE BID

- The solutions offered in the Bid shall have approved safety systems to protect employees from consequences of occurrence of potential hazards and to provide them with safe access to the equipment for maintenance or operation purposes.
- The Bid shall comprise declaration that the delivered and installed equipment will have safety features compliant with the Owner's standards (including **LOCK-OUT/TAG-OUT** system).
- The Bidder shall guarantee that the design and installation of the detection system meet OHS requirements included in the Regulation of the Minister of Economy of 21 October 2008 on essential requirements for machinery.

14.3. TERMS AND CONDITIONS OF PERFORMANCE

- Prior to the commencement of the works, the Contractor shall prepare and sign:
 - Memorandum of Understanding,
 - Occupational Risk Assessment (“HIRA”) for works performed during the Project execution,
 - Work Organisation Plan (POR) for individual scopes of works,
 - Safety and Health Protection Plan (BIOZ),
 - High-Risk-Lifting Plan (PPWR) for operations performed with the use of lifting equipment,

The foregoing documents shall be prepared in accordance with AMP standards and agreed with appointed representatives of Health and Safety, technology and maintenance departments of Cold Rolling Mill and with representatives of the Project Owner.

- The Contractor shall commence works after take-over of the construction site and preparation of the Site Take-over Certificate with participation of the parties involved, including a representative of the Project Owner.
- During the execution of individual stages of manufacturing and delivery to the Owner's site, the Supplier shall meet safety requirements determined by the Polish law and applicable standards of the Owner (which are contained in the **Work Health & Safety Agreement**, and in the Internal Safety Standards and Regulations).
- Signing and accepting (without changes) the **Work Health & Safety Agreement** is a prerequisite for admission to commence works.
- **Continuous/permanent** supervision of the Contractor and/or its subcontractors by a coordinator in charge of occupational health and safety is required within the duration of the Project (during working hours of employees of the Contractor and/or its subcontractors). **The Contractor's OHS Coordinator may not perform other duties at the construction site.**
- The Contractor and its subcontractors shall carry out OHS audits according to the Owner's schedule within the duration of the Project.

15. REQUIREMENTS OF THE OWNER FOR THE BID

15.1. GENERAL REQUIREMENTS

- Technical and Commercial Bid shall be delivered separately, according to the Request for Quotation.

15.2. REQUIREMENTS FOR TECHNICAL BID

Technical Bid for completion of the scope of works described in this Specification shall comprise the following sections:

- I. Name and registered office of the Bidder.
- II. General description and information of offered supplies and services.
- III. Scope of works comprised in the Bid.
- IV. Bill of materials and works with indication of quantities.
- V. List of suppliers and potential sub-suppliers.
- VI. Exclusions from the Bid (supplies and services to be provided by the Buyer/Owner).
- VII. Acceptance of the Owner's Responsibility Matrix or the Bidder's proposal for a Responsibility Matrix, i.e. division of responsibilities/works clearly defining the scope of the Supplier and the Buyer/Owner.
- VIII. Schedule showing milestones of supplies of components, installation, test runs, handover for operation, etc.).
- IX. Guaranteed performances (as per Technical Specification).
- X. Guarantees.
- XI. Safety at work guarantees according to effective provisions of Polish law and the Owner's standards (including organisation chart and rules of performance of safety at work supervision during execution of the whole Project).
- XII. Declaration that the expertise and experience held and site visit are sufficient to complete the entire task.
- XIII. Declaration that the scope of supplies and services will be completed in accordance with good engineering practice and in compliance with the provisions of the law.
- XIV. Declaration that the scope of the works will be completed in accordance with Technical Documentation prepared on the basis of Tender Documentation listed in Technical Specification.
- XV. Statement of confidentiality confirming that the Bidder/Contractor will protect confidential information of the Owner and will not make available technical, technological or any other information it has received in course of this request for bid to any third party.
- XVI. The Bid validity.

- XVII. List of references (names of the buyers, locations, values of supplies/services, year) with consideration of provisions concerning references referred to in sec. 6 of this Specification).
- XVIII. Other information provided by the Bidder/Contractor, which do not bear any cost-related data but may affect the quality of the Technical Bid..

16. LANGUAGE OF THE CONTRACT

Mandatory language of the Contract (the bid, technical documentation, operating and maintenance manuals, masks of devices, diagrams, user manuals, the Contractor's supervision, contacts and agreements with the Owner's personnel and with government bodies, etc.) **shall be Polish**. All costs of translation and interpretation services during the period of Project execution shall be borne by the Bidder/Contractor.

17. INFORMATION, EXPLANATIONS AND AGREEMENTS

17.1. PERSONNEL OF THE BIDDER/CONTRACTOR

The Bidder/Contractor shall specify in the Bid the names and functions (scopes of responsibilities) of its employees (along with contact information) appointed and authorised to be in touch with the Owner at the stage of Bid Submission, Evaluation and Negotiation.

17.2. PERSONNEL OF THE OWNER

- Mr Jacek Buzdygan (Project Manager) - AMP Engineering
(e-mail: jacek.buzdygan@arcelormittal.com ; phone no.: +48 668 634 934);
- Mr Grzegorz Łojek (Automation Support) - AIM (ACE)
(e-mail: grzegorz.lojek@arcelormittal.com ; phone: +48 882 115 043)
- Mr Dariusz Kowalski (Automation Support) - AIM (ACE)
(e-mail: dariusz.kowalski@arcelormittal.com ; phone no.: +48 662 214 808)
- Mr Krzysztof Krupa (User Leader) - Cold Rolling Mill in Kraków
(e-mail: krzysztof.krupa@arcelormittal.com ; phone no.: +48 662 214 675)

17.3. INFORMATION, CORRESPONDENCE, EXPLANATIONS AND AGREEMENTS

All information regarding Technical Bid coming from the Bidder/Contractor and directed to the Owner (including correspondence, explanations and agreements) shall be delivered only and exclusively through the persons referred to in the Request for Quotation, item VII 9.

18. OTHER

18.1. WASTE PRODUCTION AND RECYCLING

Production, segregation, transport, collection, storage and recycling of wastes produced during the implementation of the Project is the Bidder's/Contractor's responsibility. Wastes produced during performance of the works shall be disposed of at the disposal yard. **The Contractor shall hold appropriate licence required by the law to perform the foregoing activities, or, in contrary case, it shall hire licensed company(-ies) to complete these works.**

The only exception is scrap of non-ferrous metals and of iron alloys, which shall be processed to charge scrap (according to **Chapter III item 6**) and handed over to the Owner.

Costs of scrap processing to charge material shall be wholly borne by the Bidder/Contractor.

A list of codes of wastes (according to the Polish law) which will be most commonly is use under this Project is as follows:

- Scrap of ferrous metals waste code: 160117, 170405, 191001.
- Scrap of non-ferrous metals waste code: 160118, 170401, 170402.
- Mixed metal scrap waste code: 170407.
- Ceramic waste waste code: 161103, 161104.
- Concrete and debris waste waste code: 170101.
- Electric cables waste code: 170411, 170604.
- Oils, greases waste code: 130110, 130208.
- Electric motor scrap waste code: 160216.
- Other waste codes to be selected on case-by-case basis.

18.2. MEASUREMENTS

The measurements specified below shall be made at the Bidder's/Contractor's costs in the scope of the Project execution:

- Power measurements (effectiveness of electric shock protection, cable insulation resistance).
- Measurements of guaranteed performances.

18.3. PROTECTION OF CONTRACTOR'S PROPERTY

The Contractor shall be responsible for protection of its own property and the property of its sub-contractors, including parts, components and complete equipment stored at the Owner's site and intended to be used under this Project over the duration of the Project until commissioning and handing over to the Owner for operation.

18.4. ENTRY/EXIT OF THE BIDDER'S/CONTRACTOR'S PERSONNEL AND MATERIALS TO/FROM THE SITE

- The Contractor shall strictly adhere to the regulations on movement of persons and materials at the Owner's site in AMP Kraków.
- Handling of project-related supplies (i.e. their loading and unloading, storage and transport between different operations) is within the Contractor's scope of responsibility.

The Owner may make available the areas which may be used to store supplies to and at the cost of the Contractor.

18.5. ADDITIONAL CONDITIONS OF PROJECT EXECUTION

Additional requirements/expectations of AMP to be fulfilled by the Bidder/Contractor during execution of the Project, which may considerably affect calculation of the task value, are as follows:

- The Bidder/Contractor shall agree to participate in coordination meetings at dates to be determined by the Owner.
- The Bidder/Contractor shall agree to prepare notes, reports and schedules in accordance with the requirements of the Owner.
- The Bidder/Contractor shall be solely and entirely responsible for correctness of information, parameters and dimensions quoted in the documentation and shall be held liable for any damage arising from provision of incorrect information.
- Acceptance of technical documentation by ArcelorMittal Poland S.A. shall not assume mitigation or lifting of the Contractor's liability for the equipment.
- The Bidder/Contractor shall nominate the **Site Manager** with appropriate/required approvals for the whole period of construction/project execution until its completion.
- The Bidder/Contractor shall provide geodetic services for construction/project being executed.
- The Bidder shall be solely responsible for the accuracy of the information and dimensions specified in the documents and liable for any losses arising from quoting erroneous data.
- The Bidder shall provide noise specifications for individual devices.
- The Bidder should apply the visual management model described in Appendix 4. The entire system provided by the Bidder should meet the visual management requirements.
- The Bidder shall submit the bid in accordance with the bid documentation and site inspection and shall foresee any additional works not particularly specified in the documentation.
- Metric units shall be used in the drawings and in technical documentation. Complete documentation shall be prepared in Polish.
- The Bidder agrees to prepare progress reports and schedules in accordance with the requirements of ArcelorMittal Poland.
- Documentation provided by ArcelorMittal Poland may be incomplete; therefore, the Bidder shall rely on its own inventory taking as well as structure, foundation and soil studies. ArcelorMittal Poland shall also submit the list of the documentation possessed. The documentation submitted by ArcelorMittal Poland shall not limit commencement of work performance.
- Prior to commencement of the works the representatives of the Contractor shall submit proof of current medical examinations in the form of appropriate document (health passport or certificate confirmed by signature and stamp of a physician) and shall be trained in the scope of provisions for safety at work (Safety Manual, SOPs, HIRA) and fire prevention applicable in ArcelorMittal Poland, unit in Kraków.
- Estimated period of obtaining H&S authorisation for companies is about 10 days what should be included in the works schedule.
- The Contractor shall strictly adhere to the regulations of person and material entry to and exit from the plant applicable in ArcelorMittal Poland, Unit in Kraków.

- Prior to commencement of work performance, the Contractor shall prepare: HIRA, Work Organisation Plan (POR), Works Schedule, BIOZ (health and safety) plan prepared in accordance with ArcelorMittal Poland standards. The above documents must be agreed with appointed representatives of the Maintenance services, technologists of the Unit in Kraków and the project manager.
- The Contractor shall commence performance of works upon take-over of the construction site and signing the Site Take-over Certificate with participation of representatives of the user and the Project Owner.
- It is forbidden to use heavy vibrating equipment for earthworks.
- The Contractor shall provide all materials required to perform the works along with necessary tools and special equipment.
- The Contractor shall perform the works in accordance with technical conditions of performance and acceptance of works as well as applicable safety at work and fire prevention regulations and standards.
- Wastes produced during performance of the works shall be disposed of at the disposal yard. Costs associated with generation and collection of wastes, their way of transport, period of their production as well as their storage or disposal along with preparation of waste documentation shall be incurred by the Contractor.
- Copies of documentation confirming waste disposal must be submitted to BWZ within 14 days of the activity.
- The Contractor shall be responsible for protection of its own property and the property of its subcontractors, including parts, components and complete equipment stored at the Owner's site and intended for the Project's objectives over the whole period of Project implementation until commissioning and hand-over to the Owner.
- The Contractor shall assume responsibility for the task area until the commencement of works and until all systems are put into service.
- Permanent fencing panels are required to be installed during the construction phase.
- The use of temporary barriers such as tape, etc. is not permitted for fencing off the construction/work area.
- The Contractor shall take full responsibility for the Owner's premises made available for carrying out the installation, taking into account the infrastructure and equipment.
- The Contractor's employees carrying out work on power networks must have the following qualifications: Employees performing assembly works - licences for persons employed in positions related to operation of Group II and III equipment;
- Supervisors (supervising works) - licences for persons employed in positions related to Supervision of Group II and III equipment. If supervisory staff are to also perform physical work (e.g. foremen, masters), they must hold the licences listed above as well.
- Licences must be issued in accordance with the Regulation of the Minister of Economy, Labour and Social Policy of 28 April 2003 on specific rules for confirmation of qualifications held by personnel employed for operation of equipment, facilities and grids;
- The presence of a qualified gas rescue service worker and a person qualified to administer pre-medical first aid is required in each team during the performance of the task (during working hours of the Contractor's and/or its subcontractors' employees).

- The Contractor shall duly notify the District Building Supervision Inspectorate (PINB) of the commencement and completion of construction, and shall obtain a legally binding occupancy permit.
- When carrying out any work at height, special safety precautions must be taken. It is required to ensure permanent supervision over the above-mentioned works and/or continuous visual surveillance by means of cameras covering the area of works, together with archiving.
- The use of steel materials from outside AM Group is permitted only if the AM distribution network is not able to offer them in the required assortment, quality and time what should be documented by means of adequate correspondence.

- CHAPTER II

1. ENVIRONMENTAL DATA

Local environmental data for the location of ArcelorMittal Poland S.A. Cold Rolling Mill in Kraków.

1.1. LOCATION

Altitude above sea level	219 m asl
Longitude	50° 05'16.6"N
Latitude	20° 05'30.6"E
The nearest urban agglomeration	Kraków
The nearest airport	Balice - Kraków

1.2. ENVIRONMENTAL DATA

Data	Value, measurement unit
Maximum temperature	+37.4 °C (historical value)
Minimum temperature	-32.7 °C (historical value)
Average annual temperature	+8.7 °C
Average annual relative humidity	77 %
Maximum monthly precipitations	313 mm
Maximum momentary wind velocity	3.5 m/s
Seismic zone	No



Fig. Location of the project

2. STANDARDS, NORMS AND REGULATIONS

GENERAL COMMENTS

Equipment, services and technologies offered by the Bidder/Contractor shall comply with its best technical and technological expertise and norms and standards specified below.

Equipment, materials and parts used to implement the Project shall meet all technical, environmental protection and safety standards required by the provisions of Polish law.

Appendix no. 1 - Legal instruments

Appendix no. 2 - Location and environmental data

Appendix no. 3 - LOTO

Appendix no. 4 - Visual management

Appendix no. 5 - Automation standard (AIM Addendum to tender - automation system requirements PL V16)

2.1. Formats of documentation files - standards applicable in ArcelorMittal Poland S.A.

Documents: *.*.doc, *.*.pdf, *.*.xls (Microsoft Word 2010, Microsoft Excel 2010, Adobe Reader)

Schedules: *.*.mpp (Microsoft Project 2010)

Mechanical documentation: *.*.dwg, *.*.dwt (AutoCAD ver. 13 or higher, Autodesk Design Review)

Electrical documentation: *.*.zw1 (PDF, EPlan ver.5.5/P8)

Photos, images: *.*.jpg

3. BASIC DOCUMENTATION

List of basic documentation

Item	No. of design/drawing	Description
1	Hala_ZY_mapa_poglądowa.jpg	Indicative map showing columns, scanners and track axis.

CHAPTER III - SCOPE OF THE BIDDER/CONTRACTOR'S WORKS

1. COIL AND WAGON POSITION DETECTION SYSTEM.

1.1 As part of the project, the following scope of works shall be performed:

- Preparing and agreeing with AMP on the Detailed Engineering documentation for the entire project (detection system, power supply, network, service access, calibration equipment) and prefabrication of all components required for the project (optionally, purchase of complete solutions if the Bidder/Contractor does not manufacture this type of equipment).
- Supply of prefabricated units to the Owner (location - ArcelorMittal Poland S.A. - Cold Rolling Mill in Krakow) and storage of the components in a designated storage place,
- Location of power and communication (Ethernet and/or fibre optic) cabling between scanners and points indicated in the bay.
- Installation of detection system and service access.
- Project commissioning (cold and hot commissioning, calibration, availability test).
- Delivery of as-built documentation.

Equipment models marked in the table with grey background and enclosed in square brackets [] are reference models, currently installed in the bay for testing purposes. Considering the optimisation of spare parts inventory, grouping own staff of specialists and owned tools for programming these devices, the Owner is interested in maintaining the standardisation of technical solutions. However, it shall not limit the Contractor in offering new models of devices which are of equivalent technical level or functionality.

Item	Technical and technological information	Description
1	Delivery track	206 m long railway track located on one side of the coil storage bay
2	Storage bay	
2.1	Structure	Structure made with the use of supporting columns located along the side wall of the bay, height of columns: 12 m, distance between columns: 12 m.
2.2	Existing equipment / systems	Electrical and telecommunication boxes intended for connection of power supply and measuring system communication are installed on the selected columns (Z97, Z107, Z117) along the track. Number and spacing of boxes: 3 boxes every approx. 120 m. Each box provides 230 V AC power supply and free Ethernet ports connected to the

		bay network.
2.3	Additional equipment / systems	The Contractor shall purchase and mount similar electrical and telecommunication boxes on selected columns (Z102, Z112). Metal box, IP65, lockable, size 12U, deep. The boxes should be provided with power supply and 24-core single-mode fibre optic (in accordance with the existing infrastructure in the bay) and 15m of fibre optic cable reserve. The Contractor shall form fibre optic cables in the boxes and connect network equipment provided by AMP.
3	Wagons	
3.1	Type 1 wagons - shuttle car	Wagons with a gross length of 5.8 m, combined in sets of 5 to 9 wagons. There can be 2 sets of wagons on the delivery track at the same time.
3.2	Type 2 wagons	Wagons with a gross length of 8.5 m.
4	Coils and their arrangement on wagons	
4.1	Coils	Coil diameter min: 1000 mm max. 2300 mm Coil width min: 680 mm max. 2100 mm Temperature of transported coil: max. 450°C
4.2	Coils on type 1 wagons - shuttle cars	Maximum number of coils per wagon - 3 Coils, except for the first and the last wagon, do not have a fixed position on the wagon - they are arranged in a trough along the entire length of the wagon, coil axis oriented along the track axis. On the first and the last wagon (buffer wagons), the coils are placed in a fixed position on a rack, coil axis is oriented across the track axis.
4.3	Coils on type 2 wagons	Maximum number of coils per wagon - 3 The coils are arranged in a fixed position on a rack, coil axis is oriented across the track axis.
5	Measuring the position of wagons and coils	
5.1	Measurement system	Along the track, 2D laser scanners are to be installed on the supporting structure of the bay in such a way to ensure measurement along the entire length of the track. The mounting system for scanners must ensure the possibility to adjust the

		<p>position in 2 axes according to 5.4</p> <p>Anticipated number of scanners - 8 units on Z101, Z103, Z105, Z108, Z110, Z112, Z114, Z116 columns.</p> <p>The scanners should be fixed at a height of 7 meters above the ground.</p> <p>Continuous measurement / at a fixed frequency.</p>
5.2	Service access to the measuring system	<p>Rail ladders, equipped with a self-braking device, shall be installed to allow access to each scanner for the purpose of its installation and removal as well as adjustment of scanner position. Rail ladders shall be placed on the column side and may not obstruct the passage between the column and the track. Rail ladders must ensure the possibility of safe work at height in accordance with Polish Occupational Health and Safety Regulations.</p> <p>Mechanical elements of the service access should be protected against corrosion.</p>
5.3	Accuracy of positioning of wagons and coils on the delivery track	<p>The required resulting accuracy of wagons and coils positioning +/- 8 cm in relation to the indicated track start point.</p>
5.4	Calibration and adjustment of the measuring system	<p>a) Each scanner must be adjustable in 2 axes ('A' and 'B'). Adjustment ranges - according to section 1.2 of this chapter.</p> <p>b) The Contractor shall develop a method for calibrating the system and provide all necessary equipment for this purpose.</p> <p>The Contractor shall purchase and supply a laser rangefinder with a battery, with a range of 150 m and an accuracy of 1.0 mm. Calibration is described in more detail in section 1.3 of this chapter.</p>
5.5	2D laser scanner with manufacturer's SDK	<p>LIDAR [SICK LMS511-20100] or equivalent with the manufacturer's software enabling the use of measurement in the IT system of the bay.</p> <p>The scanner should be heated at low temperatures.</p> <p>The installation should be performed in such a way to ensure protection against temperature impact in the track space.</p> <p>Scanner specifications: Angular resolution: 0.167° Range (at 10% remission): 26m</p>

		<p>Light source: Infrared Opening angle: minimum 130° Voltage level: 24VDC Interface: Ethernet (TCP/IP) Ambient temperature in the working environment: -30°C ... +50°C Power consumption (with heating): max. 77W Protection rating: minimum IP65</p>
5.6	Power supply and communication of 2D scanners with bay IT system	<p>Power supply 24 V DC, The Contractor shall install the power supply and communication systems. Communication cables must be shielded, minimum cat. 5e, terminated with industrial plugs.</p> <p>Communication via Ethernet, TCP/IP protocol.</p>
5.7	Additional requirements	The scanner mounting parts must be protected against corrosion and vibration.
6	Computer and Application Software	
6.1	Computer	The Contractor shall install and provide power supply for PCBox HP computer, delivered by AMP.
6.2	Application software	The manufacturer's SDK shall be provided by the Contractor. The application software shall be provided and installed by AMP.
6.3	Start-up	Starting the program of the system for detection of wagons and coils shall be the AMP's responsibility. Electrical start-up, adjustment and correction of position shall be the Contractor's responsibility.
7	Technical documentation	
7.1	Content of the documentation	The Contractor shall provide full technical documentation (electrical, mechanical and network design). Technical documentation must be submitted in two paper copies and in soft electronic editable copy on an attached CD.
7.2	Delivering documentation	The as-built documentation shall be prepared in accordance with the Polish law and AMP standards. It should be delivered to the Owner's seat prior to the availability test.

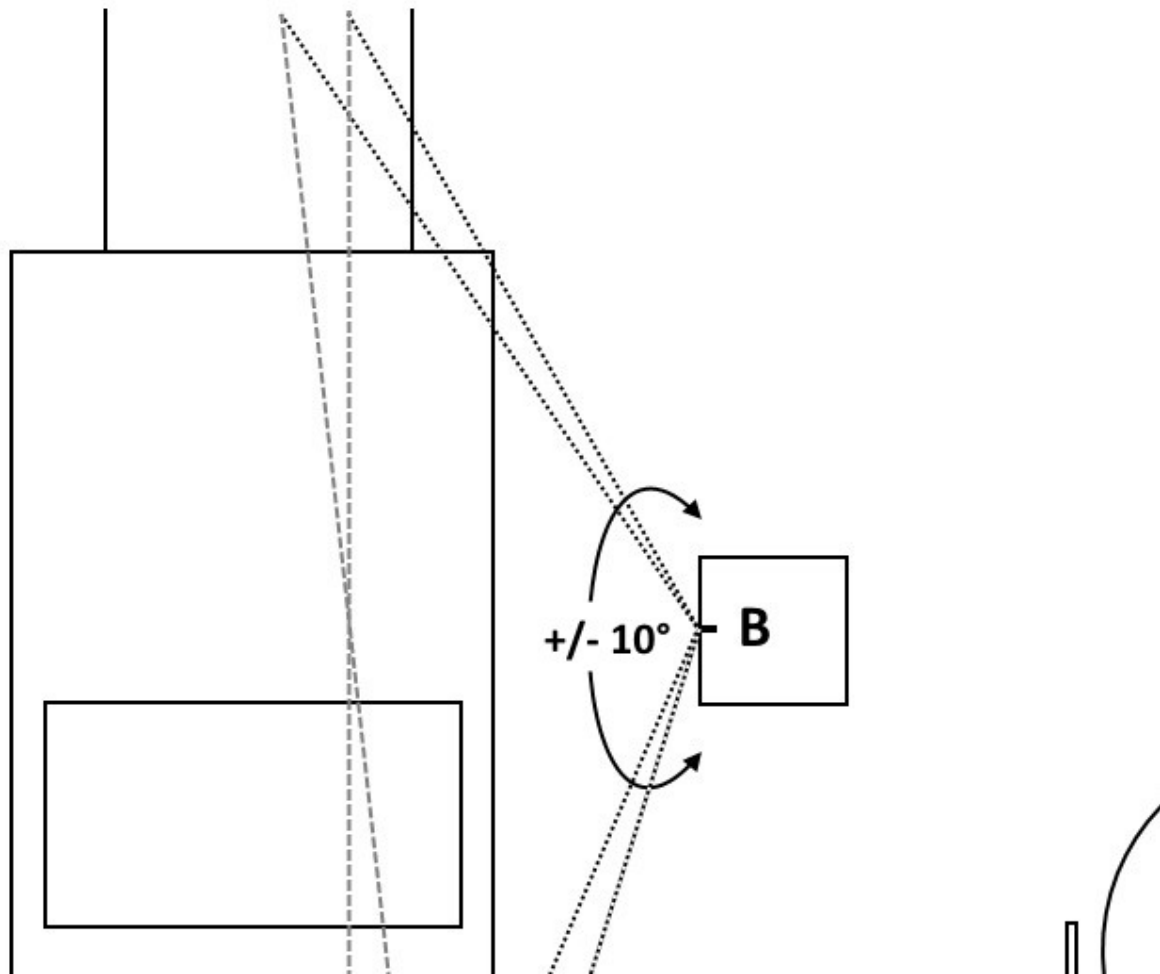
1.2 Adjusting the scanner position

The scanner should be mounted in such a way that the scanning line (understood as the line seen by the scanner on the bay floor when there is no train on it) is parallel to the track axis, lies between the railway rails, and the scanner's central measuring point is within the contour of the column, on which the scanner is mounted.

Adjustment 'A' of the scanner - adjustment of the scanning line position: minimum in front of the first rail, maximum behind the second rail, as shown in the drawing. The Contractor must provide coarse adjustment from 6.5° to 32.5° and fine adjustment $\pm 10^{\circ}$ within the coarse adjustment range.

Adjustment 'B' of the scanner - adjustment of scanning line angle relative to the track axis. It shall be used for precise positioning of the scanner to ensure it is parallel to the track axis. The Contractor must ensure fine adjustment by $\pm 10^{\circ}$.

'A' and 'B' adjustments must be independent of each other.



1.3 Calibration of the scanner position

During the scanner calibration, the scanner scans calibration standards of known dimensions and exact location relative to an indicated starting point of the track in order to correlate the scanner readings to the bay coordinate system. The calibration standard must provide a characteristic point (offset, apex) that is readable on the scanner measurement. Calibration standards shall be provided by the Contractor. One standard should not exceed 20kg and be equipped with handles to facilitate transport by 2 persons.

2. DOCUMENTATION REQUIRED DURING PROJECT EXECUTION

- Verified/up-dated Work Schedule,
- Memorandum of Understanding,
- Occupational Risk Assessment ("HIRA") for works performed,
- BIOZ (Health and Safety Plan),
- Work Organisation Plan prepared on the basis of the Schedule attached in appendix to this Technical Specification,

- Preparation and submission of weekly work progress reports expressed in percentage, according to the Buyer's/Owner's instructions,
- Preparation of Reports of safety at work audits.

3. GUARANTEED PARAMETERS

List of guaranteed parameters, which shall be verified during acceptance performed by the Buyer:

- 5.1 The precision of measuring system allowing to determine the position of wagon and coil position with the accuracy of +/- 8 cm relative to the indicated starting point of the track,
- 5.2 Availability of the measuring system 99.95% (measured during operating hours within the period of availability test, i.e. 30 days of operation - 720 hours less scheduled downtimes and 230V power supply failures on the part of AMP),
- 5.3 Time required to calibrate one scanner must not exceed 1 hour.
- 5.4 Service access to each scanner, in accordance with Polish OHS regulations, is a guaranteed parameter.

< END >