

Amendment to the Articles of Organization of 12 October 2000.

10. Amendment to the Articles of Organization of 24 November 2000 and 13 December 2000.

Foreign capital: 83% Holland.

11. Amendment to the Articles of Organization of 15 December 2000.

12. Amendment to the Articles of Organization of 23 March 2001 in the form of its full wording.

13. Enclosure 2 to the Articles of Organization of 3 December 2001.

14. Enclosure 1 to the Articles of Organization of 26 September 2001.

15. The Articles of Organization amended by Notarial Deeds No. N 267/2002 Nz 268/2002 of 3 July 2002 and N 434/2002 Nz 434/2002 of 23 September 2002.

16. Minutes of EGM of the company dated 5 August 2002.

17. Minutes of EGM of the company dated 10 September 2002.

18. Full wording of the Articles of Organization of 5 December 2002.

19. Sole partner's decision of 3 March 2003.

20. Amendment to the Articles of Organization of 21 March 2003.

21. Amendment to the Articles of Organization of 24 July 2003 and 12 August 2003.

22. Sole partner's decision of 27 August 2003 on appointment of a new executive officer.

23. Sole partner's decision of 27 November 2003.

24. Amendment to the Articles of Organization of 7 May 2003.

Amendment to the Articles of Organization of 18 December 2003.

25. Contribution of a part of operations of U. S. Steel Košice, s. r. o., namely AC44 Protected Plant, to the registered capital of U. S. Steel Services s. r. o. as of 1 September 2007 pursuant to the sole partner's decision of 27 August 2007 and the decision of the Extraordinary General Meeting of U. S. Steel Services s. r. o. of 27 August 2007.

26. Contribution of a part of operations of U. S. Steel Košice, s. r. o., namely the Ferroenergy Division, to the registered capital of Ferroenergy s. r. o. as of 1 December 2017 pursuant to the sole partner's decision of 11 October 2017 and the decision of the Extraordinary General Meeting of Ferroenergy s. r. o. of 11 October 2017.

Košice I, 16 November 2018

Record certified correct

Countersigned by: Dana Figmiková

[Signature]

.....
(Authorized person's signature)

[The official round stamp
of District Court Košice I]

.....
(Official stamp)

Court fee of €6.50 paid. [Signature]

[Signature]
JUDr. Pavel VARGA

[The official round stamp
of District Court Košice I]

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR

mgr Michal Pietrek

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IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO

mgr Marek Mazurek

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APOSTILLE

(Convention de La Haye du 5 octobre 1961)

1. Country: THE SLOVAK REPUBLIC

This public document
2. has been signed by JUDr. Pavel Varga

3. acting in the capacity of JUDGE

4. bears the seal/stamp of District Court Košice I

Certified

5. at Košice 6. the 20/11/2018

7. by REGIONAL COURT IN KOŠICE

8. No. KVO 1209/2018

9. Seal/stamp: 10. Signature

[The official round stamp
of the Regional Court in Košice]

[Signature]

Administrative fee paid in
accordance with the law

[Sealed with two imprints of the official
round stamp of the Regional Court in Košice]

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Translator's notes:

(1) There is an imprint of the official round stamp of District Court Košice I in the upper inner corner of each two opposing pages.

(2) The print of the apostille is in Slovak and in English.

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

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mgr Marek Mazurek

PREKLADATEĽSKÁ DOLOŽKA

Preklad som vypracovala ako prekladateľ zapísaný v zozname znalcov, tlmočníkov a prekladateľov, ktorý vedie Ministerstvo spravodlivosti Slovenskej republiky, v odbore anglický jazyk, evidenčné číslo prekladateľa 971129.

Preklad je v denníku zapísaný pod číslom 115 / 18 .

Preklad súhlasí s prekladanou listinou.

Vyhlasujem, že som si vedomá následkov vedome nepravdivého prekladu.

TRANSLATION CLAUSE

I translated this document as a translator incorporated in the List of Experts, Interpreters and Translators maintained by the Ministry of Justice of the Slovak Republic, English language section, translator's registration number 971129.

The translation is recorded in the journal under number 115 / 18 .

The translation corresponds with the translated document.

I declare to be aware of consequences of deliberately incorrect translation.



Štof

Mgr. Kamila Štofirová

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IZOSTAL S.A.

VICE PRESIDENT
COMMERCIAL DIRECTOR

Michal Pietrek
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO

Marek Mazurek
mgr Marek Mazurek



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VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

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CEO
mgr Marek Mazurek



Výpis

z obchodního rejstříku, vedeného
Krajským soudem v Ostravě
oddíl B, vložka 3209

Datum vzniku a zápisu: 1. května 2007

Spisová značka: B 3209 vedená u Krajského soudu v Ostravě

Obchodní firma: ArcelorMittal Tubular Products Ostrava a.s.

Sídlo: Ostrava - Kunčice, Vratimovská 689, PSČ 70702

Identifikační číslo: 277 96 051

Právní forma: Akciová společnost

Předmět podnikání:

podnikání v oblasti nakládání s nebezpečnými odpady

Zámečnictví, nástrojářství

Kovářství, podkovářství

Opravy ostatních dopravních prostředků a pracovních strojů

vodoinstalatérství, topenářství

Obráběčství

izolatérství

Výroba, obchod a služby neuvedené v přílohách 1 až 3 živnostenského zákona

montáž, opravy, revize a zkoušky elektrických zařízení

montáž, opravy, revize a zkoušky plynových zařízení a plnění nádob plyny

montáž, opravy, revize a zkoušky tlakových zařízení a nádob na plyny

montáž, opravy, revize a zkoušky zdvihacích zařízení

Statutární orgán - představenstvo:

předseda

představenstva:

Ing. TOMÁŠ TELÚCH, dat. nar. 8. září 1966

Jana Maluchy 210/65, Dubina, 700 30 Ostrava

Den vzniku funkce: 31. srpna 2018

Den vzniku členství: 1. srpna 2018

člen představenstva:

Ing. MARTIN KLOSKO, dat. nar. 18. března 1970

Boční 1444, Lutyně, 735 14 Orlová

Den vzniku členství: 15. září 2014

člen představenstva:

Mgr. VERONIKA MUROŇOVÁ, dat. nar. 21. prosince 1974

Šurova 312/17, Hrabová, 720 00 Ostrava

Den vzniku členství: 1. srpna 2018

Počet členů:

4

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Způsob jednání:

J e d n á n í :

Jménem společnosti jedná v celém rozsahu představenstvo, a to buď společně všichni členové představenstva, nebo předseda představenstva (případně místopředseda představenstva) spolu s dalším členem představenstva, nebo některý ze členů představenstva samostatně, pokud je k tomu představenstvem pověřen. V případě, že je v rámci vnitřní dělby úkolů mezi členy představenstva některý člen pověřen výkonem určitých úkolů nebo funkcí v rozsahu specifikovaném v takovém pověření, může takové pověření zároveň pověřovat příslušného člena představenstva, aby při výkonu uvedených úkolů nebo funkcí v rámci takového pověření jednal jménem společnosti samostatně ve smyslu

IZOSTAL S.A.
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COMMERCIAL DIRECTOR
mgr. Michal Pietrek

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mgr. Marek Mazurek

předchozí věty, příslušný člen představenstva může být v takovém pověření zároveň pověřen, aby při jednání v jeho rámci používal specifické označení (generální ředitel, finanční ředitel apod.).

Dozorčí rada:**člen dozorčí rady:**

Ing. KRISTINA ČERVENKOVÁ, dat. nar. 15. března 1962
K Šišťotu 868, 739 44 Brušperk
Den vzniku členství: 11. září 2017

člen dozorčí rady:

SHAHAB HUSAIN, dat. nar. 21. ledna 1974
Keltičkova 2097/27c, Slezská Ostrava, 710 00 Ostrava
Den vzniku členství: 1. srpna 2018

Počet členů:

3

Jediný akcionář:

ArcelorMittal S.A.
Luxembourg L-1160, Boulevard d'Avranches 24-26, Lucemburské
velkovodství
Registrační číslo: B82454
Právní forma: akciová společnost

Akcie:

937 ks kmenové akcie na jméno v listinné podobě ve jmenovité hodnotě 4 750 000,- Kč

Základní kapitál:

4 450 750 000,- Kč

Splaceno: 100%**Ostatní skutečnosti:**

Obchodní korporace se podřídila zákonu jako celku postupem podle § 777 odst. 5 zákona č. 90/2012 Sb., o obchodních společnostech a družstvech.

Ověřuji pod pořadovým číslem V 1247/2018
že tato listina, která vznikla převedením
výstupu z informačního systému veřejné
správy z elektronické podoby do podoby
listinné, skládající se z 1 listů, odpovídá
výstupu z informačního systému veřejné
správy v elektronické podobě.

V Ostravě dne: 27. 11. 2018

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IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO

IZOSTAL S.A.
VICE PRESIDENT *mgr Marek Mazurek*
COMMERCIAL DIRECTOR
mgr Michal Pietrek



APOSTILLE

(Convention de La Haye du 5 octobre 1961)

1. Česká republika
Czech Republic

Tato veřejná listina
This public document

JUDr. Josef Kawulok

2. byla podepsána
has been signed notář

3. jehož funkce
acting in the capacity of JUDr. Josef Kawulok

4. opatřena razítkem
bears the seal/stamp of notář v Ostravě

OVĚŘENO CERTIFIED

5. v Praze
at Prague

6. dne 03.12.2018
date

7. Ministerstvo spravedlnosti ČR
Ministry of Justice of the Czech Republic

8. čís. 1381 /2018
N°

9. kolek/razítko:
duty stamp/stamp:

10. Podpis:
Signature
Jan Hókl, DiS.



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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pletrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



LS: M

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

L.S: Ministry of Justice of the Czech Republic, -74-

Copy of an Entry
from the Companies Register
of the Regional Court in Ostrava, Section B, File 3209

Date of Incorporation: 1st. May, 2007

File Number: B 3209 registered at the Regional Court in Ostrava

Business Name of the Company: ArcelorMittal Tubular Products Ostrava a.s.

Registered Office: Ostrava-Kuncice, Vratimovska Street, 689, ZIP Code 707 02

Company Identification Number: 277 96 051

Legal Form: Joint Stock Company

Subject of Business Activities:

Hazardous Waste Management,
Locksmith's work
Forging
Machines repairing, Water-plumbing, Heating- plumbing,
Metal-working
Tool-making, Insulation works
Production, Trade and Services not listed in the Annexes 1 to 3 of The Trade
Licensing Act
Installation, repairs, inspections and testing of electric devices
Installation, repairs and testing of gas facilities and gas tanks filling,
Installation, repairs, inspections and testing of pressure facilities and gas tanks,
Installation, repairs and testing of lifting devices

Statutory Body - Board of Directors:

Chairman of the Board of Directors:

TOMAS TELUCH, date of birth September 8, 1966
Jana Maluchy 210/65, Dubina, 700 30 Ostrava
Date of Commencement of the Office: August 31, 2018
Date of Membership in the Board: August 1, 2018

Member of the Board of Directors

MARTIN KLOSKO, date of birth 18th March, 1970
Bocni 1444, Lutyne, 735 14 Orlova
Date of Commencement of the Office: December 10, 2015
Date of Membership in the Board: September 15, 2014

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Member of the Board:

VERONIKA MURONONA, date of birth December 21, 1974

Surova 312/17, Hrabova, 729 00 Ostrava

Date of Commencement of the Office: August 1, 2018

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr. Michal Pietrek

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CEO
mgr. Marek Mazurek

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

Number of Members: 4.

Course of Action:

ACTION:

The Board of Directors shall act for and on behalf of the Company either jointly and severally all members of the Board of Directors or the Board's Chairman (and/or the Board's Vice-Chairman) together with any other member of the Board of Directors or any of the member of the Board independently provided that such member is authorized to act by the Board of Directors.

Shall, within the internal division of tasks among the Board's members, be authorized to perform respective tasks of offices specified by such authorization, such authorization may authorize respective Board's member within performance of specified tasks or offices under the authorization to act for and on behalf of the Company independently under previous

Data effective as of November 27, 2018. at 3:39

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Section B, File 3209

sentence, respective Board's member may be authorized to use specific title (CEO, CFO etc.)

Supervisory Board:

Member of the Supervisory Board:

KRISTINA CERVENKOVA, date of birth March 15, 1962
K Sistotu 868, 739 44 Brusperk
Date of Commencement of the Office: September 11, 2017

Member of the Supervisory Board:

SHAHAB HUSAIN, date of birth January 21, 1974
Keltickova 2097/27c, Slezska Ostrava, 710 00 Ostrava
Date of Commencement of the Office: August 1, 2018

Number of Members: 3

The Sole Shareholder:

ArcelorMittal S.A.
Luxembourg L-1160, Boulevard d'Avranches 24-26,
Luxembourg
Registration No.:B82454
Legal Form: joint stock company

Shares: 937 equity shares, registered shares in certified form in the nominal value of CZK 4,750,000.00

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

Registered Capital: CZK 4,450,750,000.00

Paid up: 100%

Other facts: The Business Corporation has complied with the law as a whole,
under Section 777, Sub - sec. 5 of the Act No.: 90/2012 Sb., on Business Corporations and
Cooperatives.

I hereby certify, under the sequence number V 1247/2018, that such Deed
created by the transfer from the IS of the Public Administration from e-form
to a form of a Deed consisting of 1 sheet of paper is in duly compliance with
the output from the IS of the Public Administration in the e-form.
In Ostrava, November 27, 2018.

L.S: JUDr. Josef Kawulok, - 3 - ,
Notary in Ostrava, *illegible signature*

Data effective as of November 27, 2018. at 3:39

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

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Signature

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

Interpreter's Clause

As an official/sworn interpreter of English, appointed by the Regional Court in Ostrava on 28.11.2013, under the No 2798/2012,
I hereby certify that the present English translation corresponds to the original Czech text of the attached document.

The translation has been recorded in the book of certified translations under the no: 245/2018

Date: December 28, 2019


Signature+ seal

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

[Handwritten signature]

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



Digitally signed by Maria KOUNIARI

Date: 2018.11.16 13:18:26 EEST

Place: GEMI Service - ACCI

Hellenic Republic

Athens Chamber of Commerce and Industry

Department of Records/ Service of General Commercial Record (GEMI)

Address: 7 Akadimias street - Post Code: 10671

Information: E. DIMITRAKOPOULOU

Athens 16/11/2018

Telephone: S.A: 2103382302 / PLC: 2103382137

Ref. No: 697969.1000419

Other: 2103382104 / Certificates: 2103382115-6

Fax: 2103616464

E-mail: efidim@acci.gr

CERTIFICATE OF CURRENT REPRESENTATION

Hereby we certify that, pursuant to the registered and filed data of the GEMI Service, by virtue of the terms of Codified Law 2190/20, as well as law 3419/2005, in force, as well as of the ministerial decrees taken in authorization of the aforesaid laws, relatively to the society anonyme with corporate name "CORINTH PIPEWORKS PIPE INDUSTRY SA" and trading name "CORINTH PIPEWORKS S.A", having its seat in the Municipality of Athens/ Attica and is registered in the General Commercial Record with GEMI No: 3978301000:

The composition of the Board of Directors and the representation of the company derives by the following registration:

Date of Registration:	Code Number of Registration ¹
18/09/2013	214850
12/04/2016	623718
25/07/2016	752664
01/09/2017	1152841
01/09/2017	1152842
01/09/2017	1152889

This certificate is granted upon the relevant request of CORINTH PIPEWORKS PIPE INDUSTRY SA, exclusively for its personal legal use.

000101

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ, ΥΠΟΥΡΓΕΙΟ ΕΞΩΤΕΡΙΚΩΝ

ΜΕΤΑΦΡΑΣΤΙΚΗ ΥΠΗΡΕΣΙΑ

REPUBLIQUE HELLENIQUE, MINISTÈRE DES AFFAIRES ÉTRANGÈRES

SERVICE DE TRADUCTION

HELLENIC REPUBLIC, MINISTRY OF FOREIGN AFFAIRS

TRANSLATION SERVICE

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

The GEMI Service
Athens Chamber of Commerce & Industry

The exactness hereof can be verified via the following link:
[https:// www.services.businessportal.gr/publicCertificate Download/form](https://www.services.businessportal.gr/publicCertificateDownload/form)

¹In case that a Code Number of Representation is not added, the standing representation derives by the registration of the Company in GEMI, made pursuant to the terms of the Ministerial Decree K1-941 (GOG B 1468/2012). In these cases, as date of registration is registered the date of registration in GEMI.

APOSTILLE

CONVENTION OF HAGUE OF THE 5th OF OCTOBER 1961

COUNTRY: GREECE

THE PRESENT PUBLIC DOCUMENT,

HAS BEEN SIGNED BY Ms MARIA KONIARI (DIGITAL SIGNATURE)

ACTING UNDER THE CAPACITY OF THE CLERK

AND BEARS THE OFFICIAL SEAL OF THE ACCI (N/A)

THIS CERTIFICATE WAS CERTIFIED IN ATHENS ON 19/11/2018

BY THE DECENTRALIZED ADMINISTRATION OF ATTICA

No: 76985

OFFICIAL SEAL OF THE DECENTRALIZED ADMINISTRATION OF ATTICA

(Signature)

Socratis A. DAMKALIS

Athens 20/11/2018

True translation of the attached Greek certified original document.

The translator: M. L. DRAKOPOULOU

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**REPUBLIQUE HELLENIQUE
MINISTÈRE DES AFFAIRES ÉTRANGÈRES**

Vu pour légalisation de la signature
du Traducteur près le Ministère des Affaires
Étrangères qui a traduit le document ci-joint.

Athènes, le 21 NOV 2018



PAR DELEGATION DU MINISTRE
Le Directeur p.d.

Pavlidis Ioannis
Admin. Secretary

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

Hellenic Republic
Athens Chamber of Commerce and Industry
Directorate of Records and Development of Information Systems
Department of Records/ Service of General Commercial Record (GEMI)
Information: Katerina SAKELLARIOU Athens 01/09/2017
Telephone: 2103382203 Ref.no:861424
Fax: 2103616464
E-mail:ksakellariou@acci.gr

NOTICE

Of Registration at the General Commercial Record (GEMI) of particulars of the société anonyme "CORINTH PIPEWORKS PIPE INDUSTRY SA"

On 01/09/2017 were registered in the General Commercial Record (GEMI) with Registration Code Number 1152889 the Minutes dated 17/07/2017 of the Board of Directors of the société anonyme with corporate name "CORINTH PIPEWORKS PIPE INDUSTRY SA", trading name "CORINTH PIPEWORKS S.A" and GEMI Record's no: 3978301000 (former S.A Record's no: 47161/01/B/00/583), pursuant to which derives that:

- A) Died BAKOURIS Konstantinos son of Georgios, resident of Palaio Psychiko, 58 Vas. Pavlou street, holder of the Police Identity Card no: AM 115550, TIN 072009265, IRS of Psychiko
- B) As new member of the Board of the Directors was elected Mr PANAGIOTOPOULOS Ioannis, son of Vasileios and Athanasia, born on 22/12/1940, economist, resident of Cholargos, 5 Terspichoris street, holder of the Police Identity Card: T AI641705, TIN 009905179, Vice Chairman
- C) Thereinafter the Board of the Directors is reformed for the rest of its term, as follows:
 - 1. Meletios FIKIORIS s/o Ioannis and Aglaia, born on 01/07/1944, lawyer, resident of Amarousio, 16 Cheimaras street, holder of the P.I.D M326615 & TIN 008854952, Chairman
 - 2. Ioannis PANAGIOTOPOULOS, son of Vasileios and Athanasia, born on 22/12/1940, economist, resident of Cholargos, 5 Terspichoris street, holder of the Police Identity Card: T AI641705, TIN 009905179, Vice Chairman
 - 3. Adamantios VASILAKIS, s/o Theodoros and Argyro, born on 13/06/1942, resident of P. Faliro, 26 Ivis street, P.I.D AI612998 & TIN 012214620, Member

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

4. Ioannis STAVROPOULOS s/o Stavros and Georgia, born on 24/03/1946, private employee, resident of Amarousio, Attica, 3 Krystalli street, holder of the P.I.D K 221209 & TIN 011958623, Member

5. Nikolaos GALETAS s/o Ioannis and Mantha, born on 05/12/1935, business consultant, resident of Kifisia, 12 Ilectras street, holder of the P.I.D AI677996 & TIN 008821503, Member

6. Andreas KYRIAZIS s/o Sotirios and Paraskevi, born on 10/10/1925, chemist, resident of Athens, 38 Skoufa street, holder of the P.I.D 000233772, Member.

7. Evangelos SYRIGOS S/O Mathaios and Dimitra, born on 06/03/1966, Assistant Professor of Panteio University, resident of Kallithea, Attica, 32 Chatzopoulou street, holder of the P.I.D AB554287 & TIN 028794850, Member

B) Representation of the company:

Determines the Representation of the Company as follows:

1) Revokes every other previous decision of the Company concerning representation matters and reserving all rights governing the actions not duly determined herein, appoints, according to the Articles of Association, the following mentioned to proceed to the execution of the following limited actions and legal acts relatively to the administration and management of the Company and the corporate assets, as follows:

a) Mr Ioannis Stavropoulos, Authorized Representative and

b) Mr Apostolos PAPAVASILEIOU, son of Andreas, resident of Melissia, 30 Omirou street, holder of the Police Identity Card no: 666035, TIN 047128778, General Manager.,

The above mentioned, jointly acting, bind and represent extra-judicially and before the competent courts the Company for the following analytically mentioned actions and legal acts:

a) contracts' signing between the Company and any natural person, of the Greek State as well as any other Legal Person of Private or Public Law, Organisms and Common Utility Companies, tenders and offers submission and negotiations conduct in general for the contracting of those contracts; b) issue or acceptance of bill of exchanges and promissory notes providing that a saving clause that cannot be transferred by endorsement or assignment, but only to the Banks legally operating in Greece. The said saving clause is not set only when the bearers of bills of

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

exchange or promissory notes are exclusive foreign firms and the said issuance and acceptance of bills of exchange and promissory notes takes place according to the terms of payment of market contracts and their value covers the value of bills of lading, legally transferred upon the Company's order; c) issuance of checks but upon the order of third parties and provided that the saving clause "Not in order" or "Non-transferable" is registered; d) issuance of promissory letters; e) collection of money, securities and dividends, provision of authorization to other persons for the collection of money and delivery of security notes in general; f) contracting of agreements with banks for the opening of guaranteed credits, issuance of letters of guaranty of each category, as well as the valid payment of the Company's commissioners, collection of bills of lading by the payment of guarantee, use of credit by open accounts in personal security or other insured notes and every other kind of contract aiming those scopes by the above mentioned contracts; g) endorsement of bills of exchange and checks, of which the Company is the bearer and holder, either as issuer of those or due to the endorsement, to any Bank legally operating in Greece for the collection, pre-payment, guarantee or forfeit of their value being credited despite their endorsement by the Bank for all the cases where their endorsement is made for the collection or pre-payment ; h) issuance of bills of exchange whereat there is a saving clause relatively to the non-transferable status of the bill of exchange to dockets of bills and promissory notes of Banks and more specifically to the Bank of Greece and contracting of agreements of which the content is the above mentioned dockets of bill of exchange and promissory notes prepayment; i) collection and endorsement of bills of exchange and in general bills of lading, j) contracting of agreements with Banks having as topic the opening of accounts, credits abroad or the delivery of remittance and the mortgaging of claims of the Company deriving by guaranteed credits; k) written orders to Banks considering: 1) the payment of promissory letters of the company or promissory bills of exchange of the Company by the authorized Bank, abroad or inside the territory, by debiting the checking account of the Company at the said Bank, 2) the transfer of monetary amounts by a deposit account to another deposit account of the Company at the said bank, 3) the payment of any kind of liabilities of the Company and 4) the execution of transfers and in general the transfer of monetary amounts from the Company's accounts to third parties accounts; l) notice of termination of

000109

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ, ΥΠΟΥΡΓΕΙΟ ΕΞΩΤΕΡΙΚΩΝ
 ΜΕΤΑΦΡΑΣΤΙΚΗ ΥΠΗΡΕΣΙΑ
 REPUBLIQUE HELLENIQUE, MINISTERE DES AFFAIRES ETRANGERES
 SERVICE DU TRADUCTION
 COMMERCIAL DIRECTOR
 REPUBLIC, MINISTRY OF FOREIGN AFFAIRS
 TRANSLATION SERVICE
 mgr Michal Pietrek

IZOSTAL S.A.
 CHAIRMAN OF THE BOARD
 CEO
 mgr Marek Mazurek



000110

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

the work contracts that the Company has signed with its personnel and notification of the said Work Contracts at the Organism of Workforce Employment, m) signing of export documents whereby the Company has dealings with the department of exports of various Banks and Legal persons of Public Law; n) contracting agency or brokerage agreements with factoring companies as well as every other additional act of modification of the said contracts including their extend and o) orders for the provision of investment services and the drawing up of dealings on all the financial instruments, purchases and sales on financial instruments negotiating in regulated markets, in multilateral trading facilities or/ and outside the regulated markets and multilateral trading facilities (suggestively are mentioned the orders for the elaboration of exchange actions, foreign exchange forward, interest –rates swap, terms deposits), as well as any other action is required and takes place for the execution and the closing transactions.

2. Also the above mentioned authorized members, or their legal representatives according to the case, shall be jointly present and represent the Company before the General Meetings of the SA companies and the Meetings of the shareholders of PLC companies whereat the Company participates and shall lodge all the Company's rights as member of those Companies acting simultaneously every other action provided by the Law.
3. Appoints as surrogates of the aforesaid authorized members, the following:
 - a) of **Mr Ioannis STAVROPOULOS**, **Mr. Ioannis PANAGIOTOPOULOS**, Vice Chairman, or **Mr. Charalampos PAPANIKOLAOU** son of Georgios, resident of Athens, 13 Michail Voda street, holder of the Police Identity Card no: AI016559, TIN 006665101, 15th IRS of Athens and
 - b) of **Mr. Apostolos PAPAVASILEIOU**, **Mr. Ioannis – Dimitrios PAPADIMITRIOU** son of Nikolaos, Financial Manager of the Company, resident of Acharnes, 53 Karaiskaki & Sokratous street, holder of the Police Identity Card no: AA035130, TIN 045634458, IRS of Chalandri or **Mr. Theofanis ALEXOPOULOS** son of Konstantinos, resident of Glyfada, Attica, 54 Tataki street, holder of the Police Identity Card no: AE102324, TIN 033878081, IRS of Glyfada or **Mr. Nikolaos SARSENTIS** son of **Dimitrios**, resident of Athens, 8 Irakleitou street, holder of the Police Identity Card No: AB 281941, TIN 040031394, 4th IRS of Athens.

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000112

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

B) To:

a) **Mr. Konstantinos CHIONOS** son of Spyridon, resident of Ayios Dimitrios, 12 Kakavias street, holder of the Police Identity Card 014072, TIN 006655955, IRS of St. Dimitrios; **Mr Nikolaos KAPODISTRIAS** son of Christos, resident of Pefki, 17 Kritis street, holder of the Police Identity Card no: AE 236647, TIN 016573724, IRS of Amarousio and **Mr. Athanasios MILIOKAS** son of Ioannis, resident of Papagos, 5 Voutsina street, holder of the Police Identity Card no: I410620, TIN 002811142, IRS of Cholargos and

b) **Mr. Nikolaos KARANIKOLAS** son of Timoleon, resident of Kifisia, 4 Dimosthenous street, holder of the Police Identity Card no: AI142104, TIN 101480692, IRS of Kifisia, **Mr. Vardis KOUNALAKIS** son of Efstratios, resident of Moschato, 180 Platonos street, holder of the Police Identity Card no: X 659818, TIN 055090599, IRS of Moschato, **Mr. Angelos BAIRAKTARIS** son of Ioannis, resident of Pefki, 19 Androu street, holder of the Police Identity Card no: AB055493, TIN 073388098, IRS of Amarousio.

Any of the **above parties**, with the aforesaid status, **mentioned in section Ba acting jointly with any of the parties mentioned in section Bb**, bind and represent extra-judicially and before the competent courts the Company for the above mentioned actions and legal acts and deeds, and specifically of those mentioned with the particulars: b, c, d, e, g, h, i, j, l and o.

4. Appoints as surrogates of the aforesaid parties mentioned in section B, the following:

a) of Mr. Nikolaos KAPODISTRIAS, Mr Konstantinos KARONIS son of Dimitrios, resident of Amarousio, 16 Cheimarass street, holder of the Police Identity Card no: X065822, TIN 029974975, IRS of Amarousio and

b) of Mr. Athanasios MILIOKAS, Mr. Dimitrios KYRIAKOPOULOS son of Georgios, resident of Ekali, 6A Yakinthou street, holder of the Police Identity Card no: AK695653, TIN 007070674, IRS of Kifisia.

Relevant document of exercise of control of the Prefecture of Attica, Prefectural Union of Athens, Central Sector (reference no: 16532/ 01-09-2017).

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

After the Chairman of ACCI order

The Special Consultant

(Sealed and Signed) – Georgios GEORGAKOPOULOS

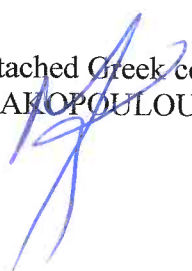
For The Director – pp Efth. MANIKAS

The exactness hereof can be verified in <https://www.businessregistry.gr/publicity.aspx>

Athens 02/10/2017

True translation of the attached Greek computerized document.

The translator: M. L. DRAKOPOULOU



000115

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ, ΥΠΟΥΡΓΕΙΟ ΕΞΩΤΕΡΙΚΩΝ
ΜΕΤΑΦΡΑΣΤΙΚΗ ΥΠΗΡΕΣΙΑ
VICE PRESIDENT HELLLENIQUE, MINISTERE DES AFFAIRES ETRANGERES
COMMERCIAL DIRECTOR SERVICE DU TRADUCTION
mgr Michal Pietrek HELLENIC REPUBLIC, MINISTRY OF FOREIGN AFFAIRS
TRANSLATION SERVICE

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



**REPUBLIQUE HELLENIQUE
MINISTERE DES AFFAIRES ETRANGERES**

Vu pour légalisation de la signature
du Traducteur près le Ministère des Affaires
Etrangères qui a traduit le document ci-joint.

Athènes, le **03 OCT 2017**



PAR DELEGATION DU MINISTRE
Le Directeur p.c.

[Signature]
Pavlidis Ioannis
Admin. Secretary

000116

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
[Signature]
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
[Signature]
mgr Marek Mazurek

TO WHOM IT MAY CONCERN

The Athens Chamber of Commerce and Industry hereby certifies that the enterprise below is registered with it under the following details:

Name : CORINTH PIPEWORKS PIPE INDUSTRY SOCIETE ANONYME
Legal Status : S.A. (SOCIETE ANONYME) Chamber Registration Nr : 190982
Distinctive title : CORINTH PIPEWORKS S.A.
Registration Number of Hellenic Business Registry : 003978301000
Date of establishment: Oct. 09, 2000 - Date of registration: Oct. 27, 2000
Taxpayer's Identification Number : EL099362325
Address: 2-4, MESOGEION AVE. Athens Tower Building B , 11527 ATHENS -

Business Activity:
2420 Manufacture of tubes, pipes, hollow profiles and related fittings, of steel
4672 Wholesale of metals and metal ores
7740 Leasing of intellectual property and similar products, except copyrighted works

It is mentioned that the above said company :

1. Has accomplished all financial obligations towards our Chamber till Dec. 31, 2019
2. Comments : -
3. This certificate is issued upon the request of the above said company and can be used for any legal purpose.

The Head of the Registry
Section




Apostolos Papavasiliou
CEO


Ioannis Stavropoulos

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The registration in the ACCI and the issuance of the present certificate do not constitute an operational license neither can substitute it where this is required by special provision of the law.

E/MHTP.1120-02/1

IZOTAL S.A.
VICE-PRESIDENT
COMMERCIAL DIRECTOR

mgr Michał Pietrek

IZOTAL S.A.
CHAIRMAN OF THE BOARD
CEO

mgr Marek Mazurek

7, Akadimias str. 106 71 Athens, Greece, Tel: +30 210 36 04 815-9, +30 210 36 02 411, Fax: +30 210 36 16 464

Website: www.acci.gr, Email: info@acci.gr



FERRUM S.A.

To:

Katowice, 27.11.2018

AB Amber Grid

Savanoriu pr..28,

LT-03116, Vilnius

Lithuania

Warranty Letter

Ferrum S.A

for Open Procedure notice 18/7/2018 No 391469

Herewith we Mr Krzysztof Kasprzycki being the President of the Board and Mrs Honorata Szlachetka being the Vice President of the Board of Ferrum S.A, at Porcelanowa 11 40-246 Katowice, Poland undertake production for Izostal S.A. with registered seat in at Opolska 29, 47-113 Kolonowskie, Poland – black/coated steel pipes DN 711 & DN 508 according to Amber Grid AB Technical specification 2015-08-00-KRDD-D.PP-BOQ from 2016-03-15 in quantity indicated bellow. The by Ferrum S.A produced pipes fully satisfy the requirements laid down by the above mentioned conditions.

Delivery will be:

000118

ul. Porcelanowa 11
40-246 Katowice

tel.: +48 32 730 47 99
BDO: 000017974

ferrum@ferrum.com.pl
www.ferrum.com.pl

NIP 634-01-28-794
Regon 272581760

Rejestracja Sąd Rejonowy w Katowicach, Wydział VIII Gospodarczy, KRS 0000063239, Kapitał zakładowy w całości wpłacony 178.946.488,65 PLN

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR

mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO

mgr Marek Mazurek

External diameter (mm)	Wall thickness (mm)	Steel	Quantity (m)	Delivery term and quantities
Design pressure of the gas pipeline 54 bar				
711 (for HDD sections)	12.5.	L415 ME	3000	Not later than within 4 months from the signing of a contract with a supplier of the pipes
711	8.0	L415 ME	124300	1) Not less than 10 km and not more than 20 km – not later than within 3 months from the date of entry into a contract with a supplier of pipes; 2) Not less than 10 km and not more than 20 km – not later than within 4th month from the date of entry into a contract with a supplier of pipes; 3) Not less than 20 km and not more than 30 km – not later than within 5th month from the date of entry into a contract with a supplier of pipes; 4) Not less than 20 km and not more than 40 km – not later than within 6th month from the date of entry into a contract with a supplier of pipes; 5) Not less than 10 km and not more than 20 km – not later than within 7th month from the date of entry into a contract with a supplier of pipes; 6) The remaining amount (up to 45 km) – not later than within 4 months from the date of placing the order**
711	8.0 (non-insulated, for welding samples)	L415 ME	24	Not later than within 3 months from the date of entry into a contract with a supplier of pipes
711	8,80	L415 ME	9130	Not later than within 5 months from the date of entry into a contract with a supplier of pipes
711	11.0	L415 ME	13570	At least 7 km – ne not later than within 5 months from the date of entry into a contract with a supplier of pipes; The remaining amount – not later than within 4 months from the date of placing the order**
508	8.0	L415 ME	323	Not later than within 4 months from the date of placing the order**
Design pressure of the gas pipeline 84 bar				
711	11.0	L485 ME	17290	Not later than within 4 months from the date of placing the order**
711	11.0 (non-insulated, for welding samples)	L485 ME	24	Not later than within 4 months from the date of placing the order**
Grand total (VAT excl.), EUR			167661	

** - an order shall be placed with a supplier of pipes subject to an agreed schedule of performance of works coordinated with a successful tenderer of procurement tender published on 7 June 2018 (procurement No 3816421), however, at least after three months after entry into a contract with a supplier of pipes. The supplier shall deliver the pipes in lots during the period of 2019 to 2021.

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
mgr Marek Mazurek

000119

Hereby **Ferrum S.A.**:

- 1) confirms that it is aware with the terms of the published negotiations published by **AB Amber Grid** (Contracting Authority) for **Open Procedure notice 18/7/2018 No 391469**,
- 2) confirms that it has considerable experience, know-how and all necessary resources to supply goods as it is indicated in the Commercial Offer, submitted to **IZOSTAL S.A.**;
- 3) confirms that it intends to supply goods to **IZOSTAL S.A.** (on the basis of the agreements to be concluded with **IZOSTAL S.A.** and entitles **IZOSTAL S.A.** to rely on its resources which are derived from or related with above-defined scope of supply, when submitting the bid and during the fulfilment of obligations under the contract to be concluded with the Contracting Authority; The capacities will be available to the **IZOSTAL S.A.** during the entire period of contractual obligations of implementation of the procurement contract.
- 4) ensures that materials supplied by the Company will be subject to an additional guarantee period of at least 3 years from the date of signing of the final transfer and acceptance statement concerning the last completed phase of works under the procedure set forth by the procurement contract.

This statement is prepared for the purpose of "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by **AB Amber Grid**.

PRESIDENT OF THE BOARD
CEO

.....*Krzysztof Kasprzycki*.....

VICE-PRESIDENT OF THE BOARD
CFO

.....*Honorata Szlachetka*.....

000120

ul. Porcelanowa 11
40-246 Katowice

tel.: +48 32 730 47 99
BDO: 000017974

ferrum@ferrum.com.pl
www.ferrum.com.pl

NIP 634-01-28-794
Regon 272581760

Rejestracja Sąd Rejonowy w Katowicach, VIII Gospodarczy, KRS 0000062230, Kapitał zakładowy w całości wpłacony 178.946.488,65 PLN

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR

mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO

mgr Marek Mazurek

3.



ŘO/Libor Černý/5052

AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania

05/12/2018

Warranty Letter AMTP Ostrava for Open Procedure notice 18/7/2018 No 391469

Herewith, we, Mr. Tomáš Telúch being Chairman of the Board of Directors and Mr. Martin Klosko being Member of the Board of Directors of ArcelorMittal Tubular Products Ostrava a.s. (AMTP Ostrava) registered seat at Vratimovská 689, Ostrava, 70702 Czech Republic undertake production for Izostal S.A with registered seat in Ul. Opolska 29, 47-113 Kolonowskie, Poland - black steel pipes DN 711 & DN 508 according to Amber Grid AB Technical specification 2015-08-00-KRDD-D.PP-BOQ from 2016-03-15 in quantity indicated bellow. The by AMTP Ostrava produced pipes fully satisfy the requirements laid down by the above mentioned conditions.

Delivery will be:

000121

ArcelorMittal Tubular
Products Ostrava a.s.
Vratimovská 689
707 02 Ostrava-Kunčice
Czech Republic

T +420 595 681 111
T +420 597 331 111
www.ostrava.arcelormittal.com

Identification Number
27796051
Tax Identification Number
CZ21796051

ArcelorMittal Tubular
Products Ostrava a.s.
incorporation the Regional
Court at Ostrava,
Section B, Insert 3209
(filing mark B.3209)

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

External diameter (mm)	Wall thickness (mm)	Steel	Quantity (m)	Delivery term and quantities
Design pressure of the gas pipeline 54 bar				
711 (for HDD sections)	12.5.	L415 ME	3000	Not later than within 4 months from the signing of a contract with a supplier of the pipes
711	8.0	L415 ME	124300	1) Not less than 10 km and not more than 20 km – not later than within 3 months from the date of entry into a contract with a supplier of pipes; 2) Not less than 10 km and not more than 20 km – not later than within 4th month from the date of entry into a contract with a supplier of pipes; 3) Not less than 20 km and not more than 30 km – not later than within 5th month from the date of entry into a contract with a supplier of pipes; 4) Not less than 20 km and not more than 40 km – not later than within 6th month from the date of entry into a contract with a supplier of pipes; 5) Not less than 10 km and not more than 20 km – not later than within 7th month from the date of entry into a contract with a supplier of pipes; 6) The remaining amount (up to 45 km) – not later than within 4 months from the date of placing the order**
711	8.0 (non-insulated, for welding samples)	L415 ME	24	Not later than within 3 months from the date of entry into a contract with a supplier of pipes
711	8,80	L415 ME	9130	Not later than within 5 months from the date of entry into a contract with a supplier of pipes
711	11.0	L415 ME	13570	At least 7 km – ne not later than within 5 months from the date of entry into a contract with a supplier of pipes; The remaining amount – not later than within 4 months from the date of placing the order**
508	8.0	L415 ME	323	Not later than within 4 months from the date of placing the order**
Design pressure of the gas pipeline 84 bar				
711	11.0	L485 ME	17290	Not later than within 4 months from the date of placing the order**
711	11.0 (non-insulated, for welding samples)	L485 ME	24	Not later than within 4 months from the date of placing the order**
Grand total (VAT excl.), EUR			167661	

** - an order shall be placed with a supplier of pipes subject to an agreed schedule of performance of works coordinated with a successful tenderer of procurement tender published on 7 June 2018 (procurement No 3816/21.) however, at least after three months after entry into a contract with a supplier of pipes. The supplier shall deliver the pipes in lots during the period of 2019 to 2021.

IZOSTAL S.A.
COMMERCIAL DIRECTOR

mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD

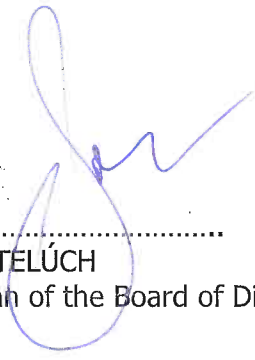
mgr Marek Mazurek

000122

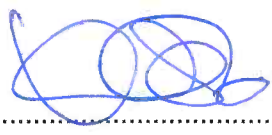
Hereby **AMTP Ostrava**:

- 1) confirms that it is aware with the terms of the published negotiations published by **AB Amber Grid** (Contracting Authority) for **Open Procedure** notice 18/7/2018 No 391469 ,
- 2) confirms that it has considerable experience, know-how and all necessary resources to supply goods as it is indicated in the Commercial Offer, submitted to IZOSTAL S.A;
- 3) confirms that it intends to supply goods to IZOSTAL S.A (on the basis of the agreements to be concluded with IZOSTAL S.A and entitles IZOSTAL S.A to rely on its resources which are derived from or related with above-defined scope of supply, when submitting the bid and during the fulfilment of obligations under the contract to be concluded with the Contracting Authority; The capacities will be available to the IZOSTAL S.A during the entire period of contractual obligations of implementation of the procurement contract.
- 4) ensures that materials supplied by the Company will be subject to an additional guarantee period of at least 3 years from the date of signing of the final transfer and acceptance statement concerning the last completed phase of works under the procedure set forth by the procurement contract.

This statement is prepared for the purpose of "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid.



.....
Tomáš TELÚCH
Chairman of the Board of Directors



.....
Martin KLOSKO
Member of the Board of Directors

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

000123



U. S. Steel Košice, s.r.o.
Vstupný areál U. S. Steel
044 54 Košice
Slovenská republika / Slovak Republic
www.usske.sk

To:

AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania

In Košice, 28/11/2018

Warranty Letter
U. S. Steel Košice, s.r.o.

for Open Procedure notice 18/7/2018 No 391469

Herewith, we, Mr. Christian Korn, being an Executive Officer of U. S. Steel Košice, s.r.o. and Mr. Martin Pitorák, being an Executive Officer of U. S. Steel Košice, s.r.o. undertake production for IZOSTAL S.A. with registered seat in Ul. Opolska 29, 47-113 Kolonowskie, Poland - black steel pipes DN 711 & DN 508 according to Amber Grid AB Technical specification 2015-08-00-KRDD-D.PP-BOQ from 2016-03-15 in quantity indicated below. The by U. S. Steel Košice, s.r.o. produced pipes fully satisfy the requirements laid down by the above mentioned conditions.

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



U. S. Steel Košice, s.r.o.
Vstupný areál U. S. Steel
044 54 Košice
Slovenská republika / Slovak Republic
www.usske.sk

Delivery will be:

External diameter (mm)	Wall thickness (mm)	Steel	Quantity (m)	Delivery term and quantities
Design pressure of the gas pipeline 54 bar				
711 (for HDD sections)	12.5.	L415 ME	3000	Not later than within 4 months from the signing of a contract with a supplier of the pipes
711	8.0	L415 ME	124300	1) Not less than 10 km and not more than 20 km – not later than within 3 months from the date of entry into a contract with a supplier of pipes; 2) Not less than 10 km and not more than 20 km – not later than within 4th month from the date of entry into a contract with a supplier of pipes; 3) Not less than 20 km and not more than 30 km – not later than within 5th month from the date of entry into a contract with a supplier of pipes; 4) Not less than 20 km and not more than 40 km – not later than within 6th month from the date of entry into a contract with a supplier of pipes; 5) Not less than 10 km and not more than 20 km – not later than within 7th month from the date of entry into a contract with a supplier of pipes; 6) The remaining amount (up to 45 km) – not later than within 4 months from the date of placing the order**
711	8.0 (non-insulated, for welding samples)	L415 ME	24	Not later than within 3 months from the date of entry into a contract with a supplier of pipes
711	8,80	L415 ME	9130	Not later than within 5 months from the date of entry into a contract with a supplier of pipes
711	11.0	L415 ME	13570	At least 7 km – ne not later than within 5 months from the date of entry into a contract with a supplier of pipes; The remaining amount – not later than within 4 months from the date of placing the order**
508	8.0	L415 ME	323	Not later than within 4 months from the date of placing the order**
Design pressure of the gas pipeline 84 bar				
711	11.0	L485 ME	17290	Not later than within 4 months from the date of placing the order**
711	11.0 (non-insulated, for welding samples)	L485 ME	24	Not later than within 4 months from the date of placing the order**
Grand total (VAT excl.), EUR			167661	
** - an order shall be placed with a supplier of pipes subject to an agreed schedule of performance of works coordinated with a successful tenderer of procurement tender published on 7 June 2018 (procurement No 3816421). However, at least after three months after entry into a contract with a supplier of pipes. The supplier shall deliver the pipes during the period of 2019 to 2021.				

000125

mgr Michal Pietrek

mgr Marek Mazurek



U. S. Steel Košice, s.r.o.
Vstupný areál U. S. Steel
044 54 Košice
Slovenská republika / Slovak Republic
www.usske.sk

Hereby **U. S. Steel Košice, s.r.o. :**

- 1) confirms that it is aware of the terms of the published negotiations published by **AB Amber Grid (Contracting Authority) for Open Procedure notice 18/7/2018 No 391469 ,**
- 2) confirms that it has considerable experience, know-how and all necessary resources to supply goods as it is indicated in the Commercial Offer, submitted to IZOSTAL S.A;
- 3) confirms that it intends to supply goods to IZOSTAL S.A on the basis of the agreements to be concluded with IZOSTAL S.A and entitles IZOSTAL S.A to rely on its resources which are derived from or related with above-defined scope of supply, when submitting the bid and during the fulfilment of obligations under the contract to be concluded with the Contracting Authority; The capacities will be available to the IZOSTAL S.A during the entire period of contractual obligations of implementation of the procurement contract.
- 4) ensures that materials supplied by the Company (IZOSTAL S.A) will be subject to an additional guarantee period of at least 3 years from the date of signing of the final transfer and acceptance statement concerning the last completed phase of works under the procedure set forth by the procurement contract.

This statement is prepared for the purpose of "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid.

Notwithstanding the above stated, any and all U. S. Steel Košice, s.r.o. 's commitments and confirmations stated herein are subject to the agreements on herein stated deliveries, including commercial as well as other terms and conditions, concluded between U. S. Steel Košice, s.r.o. and IZOSTAL S.A.

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

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U. S. Steel Košice, s.r.o.
Vstupný areál U. S. Steel
044 54 Košice
Slovenská republika / Slovak Republic
www.usske.sk

It is specifically understood that any agreement between U. S. Steel Košice, s.r.o. and IZOSTAL S.A. is conditioned upon and subject to the securing of all necessary corporate approvals, and the execution of a binding, definitive contract acceptable to each of the parties.

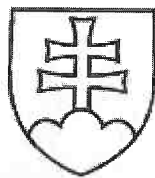
.....
Christian Korn
Executive Officer
U. S. Steel Košice, s.r.o.

.....
Martin Pitorák
Executive Officer
U. S. Steel Košice, s.r.o.

000127

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



OSVEDČENIE

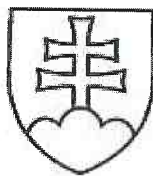
o pravosti podpisu

Podľa knihy osvedčovania pravosti podpisov osvedčujem pravosť podpisu: **Ing. Martin Pitorák**, dátum narodenia **10.11.1957**, r.č. **571110/6940**, bytom **Nižný Klátov, Tichá 246/20**, ktorého(ej) totožnosť som zistil(a) zákonným spôsobom, spôsob zistenia totožnosti: platný doklad totožnosti - úradný doklad: Občiansky preukaz, séria a/alebo číslo: **HA971389**, ktorý(á) listinu predom mnou vlastnoručne podpísal(a). Centrálny register osvedčených podpisov pridelil podpisu poradové číslo **O 950739/2018**.

Košice dňa 29.11.2018



Mgr. Vojtech Kavečanský
notár



OSVEDČENIE

o pravosti podpisu

Podľa knihy osvedčovania pravosti podpisov osvedčujem pravosť podpisu: **Christian Albrecht Carl Korn**, dátum narodenia **28.1.1953**, r.č. , bytom **79100 Freiburg, Kirchstr. 14, Nemecká spolková republika**, ktorého (ej) totožnosť som zistil(a) zákonným spôsobom, spôsob zistenia totožnosti: platný doklad totožnosti - úradný doklad: Cestovný pas, séria a/alebo číslo: **C931L6R20**, ktorý(á) listinu predom mnou vlastnoručne podpísal(a). Centrálny register osvedčených podpisov pridelil podpisu poradové číslo **O 950740/2018**.

Košice dňa 29.11.2018



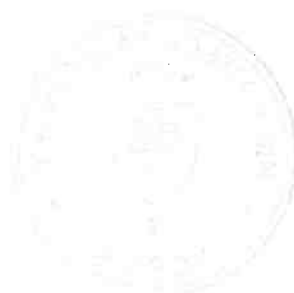
Mgr. Vojtech Kavečanský
notár

000128

Upozornenie! Notár legalizáciou neosvedčuje pravdivosť skutočností uvádzaných v listine (§58 ods. 4 Notárskeho poriadku)

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



To:

Athens, 05/12/2018

AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania
And

Warranty Letter

Corinth Pipeworks Pipe Industry SA

for Open Procedure notice 18/7/2018 No 391469

Herewith, we, Mr. Apostolos Papavasileiou, under the capacity of CEO and legal representative of Corinth Pipeworks Pipe Industry S.A. with registered offices at 2-4 Mesogeion Str., 11527 Athens, Greece and Mr. Ioannis Stavropoulos as an Executive Director of Corinth Pipeworks Pipe Industry SA, which is acting as a producer of steel pipes (sub-contractor) for Izostal S.A. with registered seat in Ul. Opolska 29, 47-113 Kolonowskie, Poland – declare to undertake the manufacture and supply of black steel pipes DN 711 & DN 508 according to Amber Grid AB Technical specification 2015-08-00-KRDD-D.PP-BOQ from 2016-03-15 in quantity indicated below and subject to the rest terms and conditions of our commercial offer. The pipes to be produced by Corinth Pipeworks Pipe Industry SA will fully satisfy the requirements laid down by the above mentioned conditions.

Delivery will be:

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
1 *mgr Marek Mazurek*



External diameter (mm)	Wall thickness (mm)	Steel	Quantity (m)	Delivery term and quantities
Design pressure of the gas pipeline 54 bar				
711 (for HDD sections)	12.5.	L415 ME	3000	Not later than within 4 months from the signing of a contract with a supplier of the pipes
711	8.0	L415 ME	124300	1) Not less than 10 km and not more than 20 km – not later than within 3 months from the date of entry into a contract with a supplier of pipes; 2) Not less than 10 km and not more than 20 km – not later than within 4th month from the date of entry into a contract with a supplier of pipes; 3) Not less than 20 km and not more than 30 km – not later than within 5th month from the date of entry into a contract with a supplier of pipes; 4) Not less than 20 km and not more than 40 km – not later than within 6th month from the date of entry into a contract with a supplier of pipes; 5) Not less than 10 km and not more than 20 km – not later than within 7th month from the date of entry into a contract with a supplier of pipes; 6) The remaining amount (up to 45 km) – not later than within 4 months from the date of placing the order**
711	8.0 (non-insulated, for welding samples)	L415 ME	24	Not later than within 3 months from the date of entry into a contract with a supplier of pipes
711	8,80	L415 ME	9130	Not later than within 5 months from the date of entry into a contract with a supplier of pipes
711	11.0	L415 ME	13570	At least 7 km – ne not later than within 5 months from the date of entry into a contract with a supplier of pipes; The remaining amount – not later than within 4 months from the date of placing the order**
508	8.0	L415 ME	323	Not later than within 4 months from the date of placing the order**
Design pressure of the gas pipeline 84 bar				
711	11.0	L485 ME	17290	Not later than within 4 months from the date of placing the order**
711	11.0 (non-insulated, for welding samples)	L485 ME	24	Not later than within 4 months from the date of placing the order**
Grand total (VAT excl.), EUR			167661	
** - an order shall be placed with a supplier of pipes subject to an agreed schedule of performance of works coordinated with a successful tenderer of procurement tender published on 7 June 2018 (procurement No 3816421), however, at least after three months after entry into a contract with a supplier of pipes. The supplier shall deliver the pipes in lots during the period of 2019 to 2021.				

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
2 *mgr Marek Mazurek*

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Hereby **Corinth Pipeworks Pipe Industry** :

- 1) confirms that it is aware of the terms of the negotiated procedure published by **AB Amber Grid** (Contracting Authority) for **Open Procedure notice 18/7/2018 No 391469** ,
- 2) confirms that it has considerable experience, know-how and all necessary resources to supply goods as stipulated in -its Commercial Offer, submitted to IZOSTAL S.A.;
- 3) confirms that it intends to supply goods to IZOSTAL S.A. (on the basis of the definitive agreements to be concluded with IZOSTAL S.A.) and entitles IZOSTAL S.A to rely on its resources which are derived from or related with above-defined scope of supply, when submitting the bid and during the fulfilment of obligations under the contract to be concluded with the Contracting Authority; The capacities for the part of the supply subcontracted to Corinth Pipeworks S.A. will be available to the IZOSTAL S.A during the entire period of contractual obligations of implementation of the procurement contract.
- 4) ensures that materials supplied by the Company will be subject to an additional guarantee period of at least 3 years from the date of signing of the final transfer and acceptance statement concerning the last completed phase of works under the procedure set forth by the procurement contract.

This statement is prepared for the purpose of "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid.

Ioannis Stavropoulos

Apostolos Papavasileiou
CEO

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

To:
AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania

Katowice, 27.11.2018

Explanation regarding used steel
For purpose of "Open Procedure No. 391469 of 18/7/2018"

During the production process for the delivery of the possible contract resulting from the public tender of supply of coated steel pipes "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No.391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid, we would like to use the steel produced by the following manufacturers:

- 1). Arcelor Mittal Poland Sp. z o.o., Poland
- 2). ThyssenKrupp Steel Europe AG ,Germany
- 3). US Steel Kosice s.r.o., Slovak Republic
- 4). ISD Dunafer Danube Iron Works Private Company Limited By Shares,Hungary
- 5). POSCO Co.Ltd., Korea
- 6). OJSC Severstal, Russia
- 7.) Colakoglu Metalurji A.S. Turkey

Should you have any additional questions please contact us as soon as possible.

PRESIDENT OF THE BOARD
CEO

Krzysztof Kasprzycki

VICE-PRESIDENT OF THE BOARD
CFO

Honorata Szlachetka

000133

ul. Porcelanowa 11
40-246 Katowice

tel.: +48 32 730 47 99
BDO: 000017974

ferrum@ferrum.com.pl
www.ferrum.com.pl

NIP 634-01-28-794
Regon 272581760

Rejestracja Sąd Rejonowy w Katowicach, Wydział VII Gospodarczy, KRS 0000013249, Kapitał zakładowy w całości wpłacony 178.946.488,65 PLN

VICE PRESIDENT
COMMERCIAL DIRECTOR

mgr Michał Pietrek

CHAIRMAN OF THE BOARD
CEO

mgr Marek Mazurek



ŘO/Libor Černý/5052

AB Amber Grid
Savanorių pr. 28,
LT-03116, Vilnius
Lithuania

05/12/2018

**Explanation regarding used steel
For purpose of "Open Procedure No. 391469 of 19 18/7/2018"**

During the production process for the delivery of the possible contract resulting from the public tender of supply of coated steel pipes "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid, we would like to use the steel produced by the following manufacturer:

- 1) ArcelorMittal Ostrava a.s., Vratimovská 689, Ostrava Kunčice, 707 02 Ostrava
- 2) ArcelorMittal Poland S.A, Unit in Krakow, ul. Ujastek 1, 30-969 Krakow

Should you have additional questions please contact us as soon as possible.

000134


.....
Tomáš TELÚCH
Chairman of the Board of Directors


.....
Martin KLOSKO
Member of the Board of Directors

ArcelorMittal Tubular
Products Ostrava a.s.
Vratimovská 689
707 02 Ostrava-Kunčice
Czech Republic

T +420 595 681 111
T +420 597 331 111
www.ostrava.arcelormittal.com

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

Identification Number
27796051
Tax Identification Number
CZ27796051

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

ArcelorMittal Tubular
Products Ostrava a.s.
incorporation the Regional
Court at Ostrava,
Section B, Insert 3209
(filing mark B.3209)

Prekladateľ:
Translator

Mgr. Kamila Štofirová, Lomonosovova 30, 040 01 Košice, SK

Zadávateľ:
Client

U. S. Steel Košice, s. r. o., Vstupný areál U. S. Steel, 044 54 Košice, SK

Číslo spisu (objednávky): 7663
File (order) number

PREKLAD č. 110/18 Z JAZYKA SLOVENSKÉHO DO JAZYKA ANGLICKÉHO
TRANSLATION No. 110/18 FROM SLOVAK TO ENGLISH

Predmet prekladu:

Notárske osvedčenie o pravosti podpisov

Subject matter of the translation

Notarization of the authenticity of signatures

Počet strán prekladanej listiny/preloženej listiny: 2/2

Number of pages of the translated document/translation

Počet vyhotovení:

1

Number of counterparts

Košice 12. 11. 2018

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

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U. S. Steel Košice, s.r.o.
Vstupný areál U. S. Steel
044 54 Košice
Slovenská republika / Slovak Republic
www.usske.sk

To:

AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania

in Košice, 02/11/2018

Explanation regarding used steel
For purpose of "Open Procedure No. 391469 of 18/7/2018"

During the production process for the delivery to company IZOSTAL S.A. as a supplier of the possible contract resulting from the public tender of supply of coated steel pipes "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid, we would like to use the steel produced by the following manufacturer:

U. S. Steel Košice, s.r.o.
Vstupný areál U. S. Steel
044 54 Košice, Slovak Republic.

Christian Korn
Executive Officer
U. S. Steel Košice, s.r.o.

Martin Pitorák
Executive Officer
U. S. Steel Košice, s.r.o.

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

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OSVEDČENIE

o pravosti podpisu

Podľa knihy osvedčovania pravosti podpisov osvedčujem pravosť podpisu: **Ing. Martin Pitorák**, dátum narodenia **10.11.1957**, r.č. **571110/6940**, bytom **Nižný Klátov, Tichá 246/20**, ktorého(ej) totožnosť som zistil(a) zákonným spôsobom, spôsob zistenia totožnosti: platný doklad totožnosti - úradný doklad: Občiansky preukaz, séria a/alebo číslo: **HA971389**, ktorý(á) podpis na listine uznal(a) za svoj vlastný. Centrálny register osvedčených podpisov pridelil podpisu poradové číslo **O 891017/2018**.

Košice dňa 9.11.2018



Mgr. Vojtech Kavečanský
notár



OSVEDČENIE

o pravosti podpisu

Podľa knihy osvedčovania pravosti podpisov osvedčujem pravosť podpisu: **Christian Albrecht Carl Korn**, dátum narodenia **28.1.1953**, r.č. , bytom **79100 Freiburg, Kirchstr. 14, Nemecká spolková republika**, ktorého (ej) totožnosť som zistil(a) zákonným spôsobom, spôsob zistenia totožnosti: platný doklad totožnosti - úradný doklad: Cestovný pas, séria a/alebo číslo: **C931L6R20**, ktorý(á) podpis na listine uznal(a) za svoj vlastný. Centrálny register osvedčených podpisov pridelil podpisu poradové číslo **O 891018/2018**.

Košice dňa 9.11.2018



Mgr. Vojtech Kavečanský
notár

Upozornenie! Notár legalizáciu neosvedčuje pravdivosť skutočností uvádzaných v listine (§58 ods. 4 Notárskeho poriadku)

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

[A letter in English addressed to AB Amber Grid, written on a letterhead paper of U. S. Steel Košice, s. r. o.]

[Signature]

[Signature]

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

*[The national emblem
of the Slovak Republic]*

CERTIFICATION

of the authenticity of a signature

In accordance with the Signature Authentication Register, I do hereby certify the authenticity of signature of **Ing. Martin Pitorák**, born **10 November 1957**, birth registration No. **571110/6940**, residing at **Tichá 246/20, Nižný Klátov**, whose identity I have legally identified on the basis of a valid proof of identity/official document: ID card, series and/or number: **HA971389**, and who autographed the instrument before me. Entry number **O 891017/2018** has been assigned to the signature by the Central Registry of Authenticated Signatures.

Košice, 9 November 2018

*[The official round stamp of
Mgr. Vojtech Kavečanský,
a civil law notary in Košice]*

[Signature]

.....
Mgr. Vojtech Kavečanský
Civil Law Notary

*[The national emblem
of the Slovak Republic]*

CERTIFICATION

of the authenticity of a signature

In accordance with the Signature Authentication Register, I do hereby certify the authenticity of signature of **Christian Albrecht Carl Korn**, born **28 Janury 1953**, birth registration No. , residing at **Kirchstr. 14, 79100 Freiburg, the Federal Republic of Germany**, whose identity I have legally identified on the basis of a valid proof of identity/official document: passport, series and/or number: **C931L6R20**, and who autographed the instrument before me. Entry number **O 891018/2018** has been assigned to the signature by the Central Registry of Authenticated Signatures.

Košice, 9 November 2018

*[The official round stamp of
Mgr. Vojtech Kavečanský,
a civil law notary in Košice]*

[Signature]

.....
Mgr. Vojtech Kavečanský
Civil Law Notary

Note: Authentication by a notary does not certify the veracity of information contained in the instrument. (Code of Notarial Procedure, s. 58:4)

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

-2-

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

000139

PREKLADATEĽSKÁ DOLOŽKA

Preklad som vypracovala ako prekladateľ zapísaný v zozname znalcov, tlmočníkov a prekladateľov, ktorý vedie Ministerstvo spravodlivosti Slovenskej republiky, v odbore anglický jazyk, evidenčné číslo prekladateľa 971129.

Preklad je v denníku zapísaný pod číslom 110/18 .

Preklad súhlasí s prekladanou listinou.

Vyhlasujem, že som si vedomá následkov vedome nepravdivého prekladu.

TRANSLATION CLAUSE

I translated this document as a translator incorporated in the List of Experts, Interpreters and Translators maintained by the Ministry of Justice of the Slovak Republic, English language section, translator's registration number 971129.

The translation is recorded in the journal under number 110/18 .

The translation corresponds with the translated document.

I declare to be aware of consequences of deliberately incorrect translation.



K. Št.

Mgr. Kamila Štofirová

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

000110



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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

To:

Athens, 05/12/2018

AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania

Explanation regarding used steel
For purpose of "Open Procedure No. 391469 of 18/7/2018"

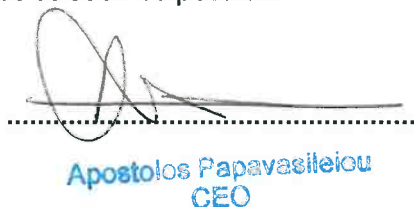
During the production process for the delivery of the agreed quantity of steel pipes to Izostal SA in relation to the possible contract resulting from the public tender of supply of coated steel pipes "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid, we would like to use the steel produced by the following manufacturer:

- 1) ARCELORMITTAL
- 2) JFE
- 3) POSCO
- 4) THYSSENKRUPP STEEL
- 5) ERDEMIR GROUP
- 6) COLAKOGLU
- 7) SHOUGANG
- 8) SHAGANG

Should you have additional questions please contact us as soon as possible.



.....
Ioannis Stavropoulos
Commercial Director



.....
Apostolos Papavasileiou
CEO

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

000142

To:

Katowice, 27.11.2018

AB Amber Grid

Savanoriu pr..28,

LT-03116, Vilnius

Lithuania

STATEMENT ABOUT REPAIR TERMS

For purpose of "Open Procedure No. 391469 of 18/7/2018"

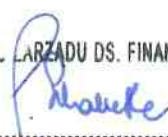
Herewith we Mr Krzysztof Kasprzycki being the President of the Board and Mrs Honorata Szlachetka being the Vice President of the Board of Ferrum S.A registered seat at Porcelanowa 11 40-246 Katowice, Poland certify that repair terms for the supplied pipes for contracts signed upon "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid, will be as follows:

In case of defective products Ferrum S.A will immediately upon receipt of a written notification from the Customer, take corrective actions at his own expense to eliminate defects resulting from the fulfillment of the Contract as far as the tasks entrusted to Ferrum S.A. In the event of a repairable defect Ferrum S.A will carry out the repair at the delivery site in the presence of the Customer. If necessary the Ferrum S.A will send replacement for the defective item, which is not possible to be repaired on the site. Should that happen, transportation will be carried out at the costs and risk of Ferrum S.A.

Should you have additional questions please contact us as soon as possible.

**PRESIDENT OF THE BOARD
CEO**

Krzysztof Kasprzycki

WICE PRZEDSIĘDWODCA DS. FINANSOWYCH

Honorata Szlachetka

000143

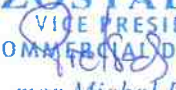
ul. Porcelanowa 11
40-246 Katowice

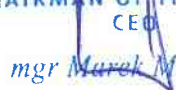
tel.: +48 32 730 47 99
BDO: 000017974

ferrum@ferrum.com.pl
www.ferrum.com.pl

NIP 634-01-28-794
Regon 272581760

Rejestracja Sąd Rejonowy w Katowicach, Wydział VIII Gospodarczy, KRS 0000063239, Kapitał zakładowy w całości wpłacony 178.946.488,65 PLN

IZOSTAL S.A.
**VICE PRESIDENT
COMMERCIAL DIRECTOR**

mgr Michał Pietrek

IZOSTAL S.A.
**CHAIRMAN OF THE BOARD
CEO**

mgr Marek Mazurek

ŘO/Libor Černý/5052

AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania

05/12/2018

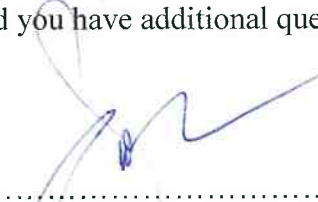
STATEMENT ABOUT REPAIR TERMS
For purpose of "Open Procedure No. 391469 of 19 18/7/2018"

AMTP Ostrava

Herewith, we, Mr. Tomáš Telůch being Chairman of the Board of Directors and Mr. Martin Klosko being Member of the Board of Directors of ArcelorMittal Tubular Products Ostrava a.s. (AMTP Ostrava) registered seat at Vratimovská 689, Ostrava, 70702 Czech Republic certify that repair terms for the supplied pipes for contracts signed between AMTP Ostrava and IZOSTAL S.A. in connection with "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid, will be as follows:

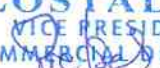
In case of defective products AMTP Ostrava will immediately upon receipt of a written notification from its customer, IZOSTAL S.A. take corrective actions at his own expense to eliminate defects resulting from the fulfillment of its contract with IZOSTAL S.A. In the event of a repairable defect AMTP Ostrava will carry out the repair at the delivery site . If necessary the AMTP Ostrava will send replacement for the defective item, which is not possible to be repaired on the site. Should that happen, transportation will be carried out at the costs and risk of AMTP Ostrava.

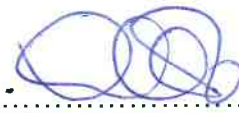
Should you have additional questions please contact us as soon as possible.


.....
Tomáš TELŮCH
Chairman of the Board of Directors

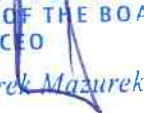
ArcelorMittal Tubular
Products Ostrava a.s.
Vratimovská 689
707 02 Ostrava-Kunčice
Czech Republic

T +420 595 681 111
T +420 597 331 111
www.ostrava.arcelormittal.com

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR

mgr Michal Pietrek


.....
Martin KLOSKO
Member of the Board of Directors

Identification Number
27796051
Tax Identification Number
CZ27796051

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO

mgr Marek Mazurek

ArcelorMittal Tubular
Products Ostrava a.s.
incorporation the Regional
Court at Ostrava,
Section B, Insert 3209
(filing mark B.3209)

000144

Prekladateľ: Mgr. Kamila Štofirová, Lomonosovova 30, 040 01 Košice, SK
Translator

Zadávateľ: U. S. Steel Košice, s. r. o., Vstupný areál U. S. Steel, 044 54 Košice, SK
Client

Číslo spisu (objednávky): 7665
File (order) number

PREKLAD č. 111/18 Z JAZYKA SLOVENSKEHO DO JAZYKA ANGLICKÉHO
TRANSLATION No. 111/18 FROM SLOVAK TO ENGLISH

Predmet prekladu: Notárske osvedčenie o pravosti podpisov
Subject matter of the translation Notarization of the authenticity of signatures

Počet strán prekladanej listiny/preloženej listiny: 2/2
Number of pages of the translated document/translation

Počet vyhotovení: 1
Number of counterparts

000145

Košice 12. 11. 2018

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek



U. S. Steel Košice, s.r.o.
Vstupný areál U. S. Steel
044 54 Košice
Slovenská republika / Slovak Republic
www.usske.sk

To:

AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania

in Košice, 02/11/2018

STATEMENT ABOUT REPAIR TERMS
For purpose of "Open Procedure No. 391469 of 18/7/2018"

U. S. Steel Košice, s.r.o.

02/11/2018

Herewith, we, Mr. Christian Korn being an Executive Officer and Mr. Martin Pitorák being an Executive Officer of U. S. Steel Košice, s.r.o. certify that repair terms for the supplied pipes for contracts („hereinafter referred to as „Contract“) between U. S. Steel Košice, s.r.o. as supplier and IZOSTAL S.A. as customer signed in relation to "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid, will be as follows:

In case of defective products delivered by U. S. Steel Košice, s.r.o. that do not conform with the Contract, U. S. Steel Košice, s.r.o. will immediately upon receipt of a written notification from the Customer, take corrective actions at its own expense to eliminate defects resulting from the fulfillment of the Contract as far as the tasks entrusted to U. S. Steel Košice, s.r.o. In the event of a repairable defect U. S. Steel Košice, s.r.o. will carry out the repair at the delivery site in the presence of the Customer. If necessary the U. S. Steel Košice, s.r.o. will send replacement for the defective item, which is not possible to be repaired on the site. Should that happen, transportation will be carried out at the costs and risk of U. S. Steel Košice, s.r.o.

Christian Korn
Executive Officer
U. S. Steel Košice, s.r.o.

Martin Pitorák
Executive Officer
U. S. Steel Košice, s.r.o.

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OSVEDČENIE

o pravosti podpisu

Podľa knihy osvedčovania pravosti podpisov osvedčujem pravosť podpisu: **Ing. Martin Pitorák**, dátum narodenia **10.11.1957**, r.č. **571110/6940**, bytom **Nižný Klátov, Tichá 246/20**, ktorého(ej) totožnosť som zistil(a) zákonným spôsobom, spôsob zistenia totožnosti: platný doklad totožnosti - úradný doklad: Občiansky preukaz, séria a/alebo číslo: **HA971389**, ktorý(á) podpis na listine uznal(a) za svoj vlastný. Centrálny register osvedčených podpisov pridelil podpisu poradové číslo **O 891076/2018**.

Košice dňa 9.11.2018



Mgr. Vojtech Kavečanský
notár



OSVEDČENIE

o pravosti podpisu

Podľa knihy osvedčovania pravosti podpisov osvedčujem pravosť podpisu: **Christian Albrecht Carl Korn**, dátum narodenia **28.1.1953**, r.č. , bytom **79100 Freiburg, Kirchstr. 14, Nemecká spolková republika**, ktorého (ej) totožnosť som zistil(a) zákonným spôsobom, spôsob zistenia totožnosti: platný doklad totožnosti - úradný doklad: Cestovný pas, séria a/alebo číslo: **C931L6R20**, ktorý(á) podpis na listine uznal(a) za svoj vlastný. Centrálny register osvedčených podpisov pridelil podpisu poradové číslo **O 891077/2018**.

Košice dňa 9.11.2018



Mgr. Vojtech Kavečanský
notár

Upozornenie! Notár legalizáciou
neosvedčuje pravdivosť skutočností
uvádzaných v listine (§58 ods. 4
Notárskeho poriadku)

000147

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

[A letter in English addressed to AB Amber Grid, written on a letterhead paper of U. S. Steel Košice, s. r. o.]

[Signature]

[Signature]

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

-1-

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

*[The national emblem
of the Slovak Republic]*

CERTIFICATION

of the authenticity of a signature

In accordance with the Signature Authentication Register, I do hereby certify the authenticity of signature of **Ing. Martin Pitorák**, born **10 November 1957**, birth registration No. **571110/6940**, residing at **Tichá 246/20, Nižný Klátov**, whose identity I have legally identified on the basis of a valid proof of identity/official document: ID card, series and/or number: **HA971389**, and who autographed the instrument before me. Entry number **O 891076/2018** has been assigned to the signature by the Central Registry of Authenticated Signatures.

Košice, 9 November 2018

*[The official round stamp of
Mgr. Vojtech Kavečanský,
a civil law notary in Košice]*

[Signature]

Mgr. Vojtech Kavečanský
Civil Law Notary

*[The national emblem
of the Slovak Republic]*

CERTIFICATION

of the authenticity of a signature

In accordance with the Signature Authentication Register, I do hereby certify the authenticity of signature of **Christian Albrecht Carl Korn**, born **28 Janury 1953**, birth registration No. , residing at **Kirchstr. 14, 79100 Freiburg, the Federal Republic of Germany**, whose identity I have legally identified on the basis of a valid proof of identity/official document: passport, series and/or number: **C931L6R20**, and who autographed the instrument before me. Entry number **O 891077/2018** has been assigned to the signature by the Central Registry of Authenticated Signatures.

Košice, 9 November 2018

*[The official round stamp of
Mgr. Vojtech Kavečanský,
a civil law notary in Košice]*

[Signature]

Mgr. Vojtech Kavečanský
Civil Law Notary

Note: Authentication by a notary does not certify the veracity of information contained in the instrument. (Code of Notarial Procedure, s. 58:4)

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IZOSTAL S.A. -2-
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

PREKLADATEĽSKÁ DOLOŽKA

Preklad som vypracovala ako prekladateľ zapísaný v zozname znalcov, tlmočníkov a prekladateľov, ktorý vedie Ministerstvo spravodlivosti Slovenskej republiky, v odbore anglický jazyk, evidenčné číslo prekladateľa 971129.

Preklad je v denníku zapísaný pod číslom 111/18 .

Preklad súhlasí s prekladanou listinou.

Vyhlasujem, že som si vedomá následkov vedome nepravdivého prekladu.

TRANSLATION CLAUSE

I translated this document as a translator incorporated in the List of Experts, Interpreters and Translators maintained by the Ministry of Justice of the Slovak Republic, English language section, translator's registration number 971129.

The translation is recorded in the journal under number 111/18 .

The translation corresponds with the translated document.

I declare to be aware of consequences of deliberately incorrect translation.



A handwritten signature in blue ink, appearing to be "K. Štofirová".

Mgr. Kamila Štofirová

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

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IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

To:

Athens, 05/12/2018

AB Amber Grid
Savanoriu pr..28,
LT-03116, Vilnius
Lithuania

STATEMENT ABOUT REPAIR TERMS

Corinth Pipeworks Pipe Industry SA

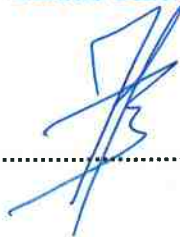
for purpose of "Open Procedure No. 391469 of 18/7/2018"

Herewith, we, Mr. Apostolos Papavasileiou being an the CEO and Mr. Ioannis Stavropoulos being an Executive Officer of Corinth Pipe Works Pipe Industry SA certify that repair terms for the supplied pipes for contracts signed upon "Open Procedure with publication of a contract notice 18/7/2018 published in the Central Public Procurement Information System, Procurement No 391469 and in the Official Journal of the European Union appendix (OL/S) 2018/S 136-311679" organized by AB Amber Grid, will be as follows:

In case of defective products (ie. Products not in conformity with the Specification) Corinth Pipe Works Pipe Industry SA will immediately upon receipt of a written notification from the Customer, take corrective actions at his own expense to eliminate defects resulting from the fulfillment of the Contract as far as the tasks entrusted to Corinth Pipe Works Pipe Industry SA. In the event of a repairable defect Corinth Pipe Works Pipe Industry SA will carry out the repair at the delivery site in the presence of the Customer. If necessary the Corinth Pipe Works Pipe Industry SA will send replacement for the defective item, which is not possible to be repaired on the site. In this case transportation will be carried out at the costs and risk of Corinth Pipe Works Pipe Industry SA.

This statement is prepared for purpose of "Open Procedure No. 391469 of 18/7/2018".

Ioannis Stavropoulos



Apostolos Papavasileiou
CEO



IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michal Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

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FERRUM S.A.

Katowice, 04.01.2019

MANUFACTURING PROCEDURE SPECIFICATION (MPS) **„FERRUM” S.A KATOWICE**

SAWH PIPES ϕ 508,0 x 8,0 mm STEEL GRADE L415ME ACC. TO PN - EN ISO 3183
INCLUDING SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1

No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	INTERNAL REGULATION
3	RAW MATERIAL	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	Conformity of the delivery to the order; thermomechanically rolled steel	Technological Instruction NO. HF/PS/333/14
	PRODUCTION AND FORMING	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each coil	Cold-forming of pipes	Technological Instruction NO. HF/PS/333/14
4	Heat analysis	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	1 x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	According to the requirements of norms and technological instructions; Check the status of delivery; check the condition of the surface; geometry	Technological Instruction NO. HF/PS/333/14
4	Quality control of delivery (welding materials)	Acc. to standard specification	Each delivery	The delivery certificate of acceptance. Reception of welding materials: wires, electrode flux - checking the compatibility of delivery with the order	
	SAWH PIPES				
4	Analysis of the chemical composition control	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	2x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	VISUAL CONTROL surface condition geometry	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Visual inspection of the outer surface and an inner tube Acc. to point 9.10 Acc. to point 9.10.5	Technological Instruction NO. HF/PS/333/14
4	DIMENSIONAL INSPECTION				
	outer diameter	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	The pipe body $\pm 0,0075D$ i.e. $\pm 3mm$ The ends of pipes - $\pm 1,6 mm$ measurement using circometer	Technological Instruction NO. HF/PS/333/14
	roundness			The pipe body acc. to Table M.3 - $0,015xD$ i.e. $7,62mm$. The ends of pipes $0,02xD$ i.e. $10,16mm$	Technological Instruction NO. HF/PS/333/14
4	transverse weld	PN-EN ISO 3183	100% of pipes	The pipe with weld connecting the tape is unacceptable.	Technological Instruction NO. HF/PS/333/14
	Wall thickness			Acc to. Table M.4 - $\pm 10\%$ or $(\pm 0,8mm)$	
4	length	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Pipe length - $13 mb (\pm 0,5m)$; less length max 5% delivery, with a minimum length of pipe - 10m	Technological Instruction NO. HF/PS/333/14
	straightness			Acc to point. 9.11.3.4 - up to 0.2% of the length locally allowed on the length 1m / 4mm	

VICE PRESIDENT

mgr Michał Pietrek

CHAIRMAN OF THE BOARD

mgr Marek Mazurek

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4	unadjustment of the edges	PN-EN ISO 3183 Attachment C + D SPECIFICATION NO. 2015-08-00- KRDD-D-PP-TS.1.1	Each pipe qualified to repair	Acc. to point M The minimum wall thickness must be preserved. Repair of pipes after hydraulic test is unacceptable. Repair of fissure is unacceptable. Repair the pipe on the section 200m to the end is unacceptable. After repair must act in acc. to point C.4.6 - PN-EN ISO 3183. Permissible number of repairs on the section 6mb - max 3 repairs	Technological Instruction NO. HF/PS/333/14
5	TUBES REPAIR	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
6	TIGHTNESS TEST	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
7	DESTRUCTIVE TESTS	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
8	Macroscopic Examination	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
9	Tensile strength test - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
10	Impact Charpy test V - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
11	DWT Test	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
12	Bending test	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
13	Hardness test	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
14	NON DESTRUCTIVE TESTS	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
15	Ultrasonic testing	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
16	weld	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
17	ends of pipes	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
18	a pipe body	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
19	Radiographic testing	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
20	untested weld and repaired place	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 508,0x8,0 - pressure= 9,4 MPa; for pressure sealing 10 bar pipe ϕ 508,0x8,0 - pressure = 7,0 MPa; for pressure sealing 20 bar pipe ϕ 508,0x8,0 - pressure = 4,6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14

5
IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
mgr Marek Mazurek

7
000154

	Residual magnetism	PN-EN ISO 3183	1 pipe / 4 hour	Acc. to E.7. - max 30 Gauss	Technological Instruction NO. HF/PS/333/14
8	THE ENDS OF THE TUBES				
	Beveling/chamfering and root face	PN - ISO 6761	100% of pipe	Beveling 30° (+5/-0°); root face - 1,6mm (± 0,8mm)	
	Internal riser	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1 9.13.2.2.	Each end of the tube	Max - 3 mm. Internal riser must be removed over a length of 100mm up to height max 0,5 mm above the surface of the pipe with smooth transition to surface of pipe	Technological Instruction NO. HF/PS/333/14
	External riser			Max - 3 mm. External riser must be removed over a length of 150mm, up to height max 0,5 mm above the surface of the pipe with smooth transition from no more than 7°. The thickness after grinding cannot be lower than minimal thickness of wall.	
9	Marking	PN-EN ISO 3183	100% of pipes	Acc. to point 11.2 at a distance of 100 mm from the end of the pipe and at least 25 mm from the weld; in permanent and legible way HF/ EN ISO 3183/ 508 / 8,0 / L415ME PSL2 G E SAWH sign of controller /shortened No. melt/number of pipe	Technological Instruction NO. HF/PS/333/14
10.	Inspection certificate	PN-EN 10204	Each pipe	Inspection certificate 3.1 in English language	

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

PRESIDENT OF THE BOARD
CEO
Krzysztof Kasprzycki

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FERRUM S.A.

Katowice, 04.01.2019

**MANUFACTURING PROCEDURE SPECIFICATION (MPS)
„FERRUM” S.A KATOWICE**

**SAWH PIPES ϕ 711 x 8,0 mm STEEL GRADE L415ME ACC. TO PN - EN ISO 3183
INCLUDING SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1**

No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	INTERNAL REGULATION
3	RAW MATERIAL	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	Conformity of the delivery to the order; thermomechanically rolled steel	Technological Instruction NO. HF/PS/333/14
	PRODUCTION AND FORMING	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each coil	Cold-forming of pipes	Technological Instruction NO. HF/PS/333/14
	Heat analysis	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	1 x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	According to the requirements of norms and technological instructions; Check the status of delivery; check the condition of the surface; geometry	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery (welding materials)	Acc. to standard specification	Each delivery	The delivery certificate of acceptance. Reception of welding materials:: wires, electrode flux - checking the compatibility of delivery with the order	
	SAWH PIPES				
	Analysis of the chemical composition control	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	2x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	VISUAL CONTROL surface condition geometry	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Visual inspection of the outer surface and an inner tube Acc. to point 9.10 Acc. to point 9.10.5	Technological Instruction NO. HF/PS/333/14
	DIMENSIONAL INSPECTION				
	outer diameter	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	The pipe body $+/-0,25\%D$ i.e. $+/-1,77$ mm. The ends of pipes - $\pm 1,2$ mm measurement using circumeter The pipe body acc. to Table M.3 - $0,015xD$ i.e. $10,6$ mm. The ends of pipes $0,5\%xD$ i.e. $3,5$ mm	Technological Instruction NO. HF/PS/333/14
	roundness				
	transverse weld	PN-EN ISO 3183	100% of pipes	The pipe with weld connecting the tape is unacceptable. Acc. to. Table M.4 - $\pm 10\%$ or $(\pm 0,8$ mm)	Technological Instruction NO. HF/PS/333/14
	Wall thickness	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Thickness measurement should be performed by the instrument ultrasonic in at least three locations along the length of the tube. Each location of measurement to study circumferentially in 4 points.	Technological Instruction NO. HF/PS/333/14

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	INTERNAL REGULATION
	length			Pipe length - 15,5 mb ($\pm 0,5$ m); less length max 5% delivery, with a minimum length of pipe - 10m	
	straightness			Acc to point 9.11.3.4 - up to 0.2% of the length locally allowed on the length 1m / 4mm	
	unadjustment of the edges			Acc. to point M 6.1 Table M5 - max 1,0 mm	
	TUBES REPAIR	PN-EN ISO 3183 Attachment C + D SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe qualified to repair	The minimum wall thickness must be preserved. Repair of pipes after hydraulic test is unacceptable. Repair of fissure is unacceptable. Repair the pipe on the section 200m to the end is unacceptable. After repair must act in acc. to point C.4.6 - PN-EN ISO 3183	Technological Instruction NO. HF/PS/333/14
				Permissible number of repairs on the section 6mb - max 3 repairs	
				pipe ϕ 711x8,0 - pressure = 7,2 MPa; for pressure sealing 10 bar pipe ϕ 711x8,0 - pressure = 6 MPa; for pressure sealing 20 bar pipe ϕ 711x8,0 - pressure = 4,7 MPa; for pressure sealing 30 bar Time test 10s	
6	TIGHTNESS TEST	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe		Technological Instruction NO. HF/PS/333/14
	DESTRUCTIVE TESTS		1 x / shift		Technological Instruction NO. HF/PS/333/14
	Macroscopic Examination				
	Tensile strength test				
	- the pipe body (T, W, L)	PN-EN ISO 6892-1 PN-EN ISO 148-1	1T / batch 1W / batch 3T / batch 3W i 3HAZ / batch	Acc. to Table M8 R _{t0,5} - 415 ÷ 565 MPa; R _m 520 ÷ 760 MPa; Tensile strength connector R _m min 520 MPa Acc. to Specification; Acc. to table G.2. - test temperature (-29°C) material - min 40J; weld and HAZ - min 40J	Technological Instruction NO. HF/PS/333/14
	- weld (T, W, L)				
	Impact Charpy test V	PN-EN ISO 3183 PN-EN ISO 5173	1x / batch 2x / batch	Min. 85% ductile fracture in temperature (-20°C) Acc. to point M.7.4.4 - Table M9 Max 270 HV10	Technological Instruction NO. HF/PS/333/14
	- the pipe body (T, W, L)				
	- weld (T, W, L)				
	DWT Test	PN-EN ISO 3183 PN-EN ISO 5173 PN-EN ISO 3183 - Acc. to point 9.10.6 Attachment J	All hardened places greater than 50 mm in any direction		
	Bending test				
	Hardness test				
	NON DESTRUCTIVE TESTS	PN-EN ISO 10893-11	100% of pipes	U2 Class Acc. to Table M10 The area of width 25 at each end of the tube is free of lamellar cracks > 6,4 mm in circumferential direction. NDT	Technological Instruction NO. HF/PS/333/14
	Ultrasonic testing				
	weld				

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	INTERNAL REGULATION
	ends of pipes	PN-EN ISO 10893-8		test for the detection in 15 mm area along the seam on each side of the fracture, lamellar cracks in U2 Class	
	a pipe body	PN-EN ISO 10893-9	100% of pipes	Acc. to Table M10 Class U2	Technological Instruction NO. HF/PS/333/14
	Radiographic testing untested weld and repaired place	PN-EN ISO 10893-6	100% of pipes	Acc. to point M 7.5.6 image class quality B	Technological Instruction NO. HF/PS/333/14
	Residual magnetism	PN-EN ISO 3183	1 pipe / 4 hour	Acc. to E.7. - max 30 Gauss	Technological Instruction NO. HF/PS/333/14
	THE ENDS OF THE TUBES				
	Beveling/chamfering and root face	PN - ISO 6761	100% of pipe	Beveling 30° (+5/-0°); root face - 1,6mm (± 0,8mm)	
	Internal riser	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1 9.13.2.2.	Each end of pipe	Max - 3 mm. Internal riser must be removed over a length of 100mm up to height max 0,5 mm above the surface of the pipe with smooth transition to surface of pipe	Technological Instruction NO. HF/PS/333/14
	External riser			Max - 3 mm. External riser must be removed over a length of 150mm, up to height max 0,5 mm above the surface of the pipe with smooth transition from no more than 7°. The thickness after grinding cannot be lower than minimal thickness of wall.	
	Marking	PN-EN ISO 3183	100% of pipes	Acc. to point 11.2 at a distance of 100 mm from the end of the pipe and at least 25 mm from the weld; in permanent and legible way HF/ EN ISO 3183/ 711 / 8,0 / L415ME PSL2 G E SAWH sign of controller/shortened No. melt/number of pipe	Technological Instruction NO. HF/PS/333/14
10.	Inspection certificate	PN-EN 10204	Each pipe	Inspection certificate 3.1 in English language	

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Katowice, 04.01.2019

**MANUFACTURING PROCEDURE SPECIFICATION (MPS)
„FERRUM” S.A KATOWICE**

**SAWH PIPES ϕ 711 x 8,8 mm STEEL GRADE L415ME ACC. TO PN - EN ISO 3183
INCLUDING SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1**

No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	INTERNAL REGULATION
3	RAW MATERIAL	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	Conformity of the delivery to the order; thermomechanically rolled steel	Technological Instruction NO. HF/PS/333/14
	PRODUCTION AND FORMING	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each coil	Cold-forming of pipes	Technological Instruction NO. HF/PS/333/14
	Heat analysis	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	1 x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	According to the requirements of norms and technological instructions; Check the status of delivery; check the condition of the surface; geometry	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery (welding materials)	Acc. to standard specification	Each delivery	The delivery certificate of acceptance. Reception of welding materials: wires, electrode flux - checking the compatibility of delivery with the order	
3	SAWH PIPES				
	Analysis of the chemical composition control	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	2x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	VISUAL CONTROL surface condition geometry	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Visual inspection of the outer surface and an inner tube Acc. to point 9.10 Acc. to point 9.10.5	Technological Instruction NO. HF/PS/333/14
	DIMENSIONAL INSPECTION				
	outer diameter	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	The pipe body $+/-0,25\%D$ i.e. $+/-1,77$ mm The ends of pipes - $\pm 1,2$ mm measurement using circometer The pipe body acc. to Table M.3 - $0,015xD$ i.e. $10,6$ mm; The ends of pipes $0,5\%xD$ i.e. $3,5$ mm	Technological Instruction NO. HF/PS/333/14
3	roundness				
	transverse weld	PN-EN ISO 3183	100% of pipes	The pipe with weld connecting the tape is unacceptable. Acc to. Table M.4 - $\pm 10\%$ - ($\pm 0,88$ mm)	Technological Instruction NO. HF/PS/333/14
	Wall thickness	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Thickness measurement should be performed by the instrument ultrasonic in at least three locations along the length of the tube. Each location of measurement to study circumferentially in 4 points.	Technological Instruction NO. HF/PS/333/14

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	INTERNAL REGULATION
	length			Pipe length - 13,5 mb ($\pm 0,5$ m); less length max 5% delivery, with a minimum length of pipe - 10m	
	straightness			Acc to point 9.11.3.4 - up to 0.2% of the length locally allowed on the length 1m / 4mm	
	unadjustment of the edges			Acc. to point M 6.1 Table M5 - max 1,0 mm	
	TUBES REPAIR	PN-EN ISO 3183 Attachment C + D SPECIFICATION NO. 2015-08-00- KRDD-D-PP-TS.1.1	Each pipe qualified to repair	The minimum wall thickness must be preserved. Repair of pipes after hydraulic test is unacceptable. Repair of fissure is unacceptable. Repair the pipe on the section 200m to the end is unacceptable. After repair must act in acc. to point C.4.6 - PN-EN ISO 3183 Permissible number of repairs on the section 6mb - max 3 repairs	Technological Instruction NO. HF/PS/333/14
	TIGHTNESS TEST	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 711x8,8 - pressure= 8.1 MPa; for pressure sealing 10 bar pipe ϕ 711x8,8 - pressure = 6.8 MPa; for pressure sealing 20 bar pipe ϕ 711x8,8 - pressure = 5.6 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
6	DESTRUCTIVE TESTS		1 x / shift		Technological Instruction NO. HF/PS/333/14
	Macroscopic Examination				
	Tensile strength test - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 6892-1	1T / batch 1W / batch	Acc. to Table M8 $R_{t0,5}$ - 415 $\div$ 565 MPa; R_m 520 $\div$ 760 MPa Tensile strength connector R_m min 520 MPa	Technological Instruction NO. HF/PS/333/14
	Impact Charpy test V - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 148-1	3T / batch 3W i 3HAZ /batch	Acc. to Specification; Acc. to table G.2. - test temperature (-29°C) material - min 40J; weld and HAZ - min 40J	
	DWT Test	PN-EN ISO 3183	1x / batch	Min. 85% ductile fracture in temperature (-20°C)	
	Bending test	PN-EN ISO 5173	2x / batch	Acc. to point M.7.4.4 - Table M9	Technological Instruction NO. HF/PS/333/14
	Hardness test	PN-EN ISO 3183 - Acc. to point 9.10.6 Attachment J	All hardened places greater than 50 mm in any direction	Max 270 HV10	
	NON DESTRUCTIVE TESTS				

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	INTERNAL REGULATION
8	Ultrasonic testing			U2 Class	
	weld	PN-EN ISO 10893-11	100% of pipes	Acc. to Table M10 The area of width 25 at each end of the tube is free of lamellar cracks > 6,4 mm in circumferential direction. NDT test for the detection in 15 mm area along the seam on each side of the lamellar cracks in U2 Class	Technological Instruction NO. HF/PS/333/14
	ends of pipes	PN-EN ISO 10893-8			
	a pipe body	PN-EN ISO 10893-9	100% of pipes	Acc. to Table M10 Class U2	Technological Instruction NO. HF/PS/333/14
	Radiographic testing untested weld and repaired place	PN-EN ISO 10893-6	100% of pipes	Acc. to point M 7.5.6 image class quality B	Technological Instruction NO. HF/PS/333/14
9	Residual magnetism	PN-EN ISO 3183	1 pipe / 4 hour	Acc. to E.7. - max 30 Gauss	Technological Instruction NO. HF/PS/333/14
	THE ENDS OF THE TUBES				
	Beveling/chamfering and root face	PN - ISO 6761	100% of pipe	Beveling 30° (+5/-0°); root face - 1,6mm (± 0,8mm) Max - 3 mm.	
9	Internal riser	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00- KRDD-D-PP-TS.1.1 9.13.2.2.	Each end of the tube	Internal riser must be removed over a length of 100mm up to height max 0,5 mm above the surface of the pipe with smooth transition to surface of pipe Max - 3 mm.	Technological Instruction NO. HF/PS/333/14
	External riser			External riser must be removed over a length of 150mm, up to height max 0,5 mm above the surface of the pipe with smooth transition from no more than 7°. The thickness after grinding cannot be lower than minimal thickness of wall.	
9	Marking	PN-EN ISO 3183	100% of pipes	Acc. to point 11.2 at a distance of 100 mm from the end of the pipe and at least 25 mm from the weld; in permanent and legible way HF/ EN ISO 3183/ 711 / 8,8 / L415ME PSL2 G E SAWH sign of controller/shortened No. melt/number of pipe	Technological Instruction NO. HF/PS/333/14
	Inspection certificate			Inspection certificate 3.1 in English language	
10.		PN-EN 10204	Each pipe		

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**MANUFACTURING PROCEDURE SPECIFICATION (MPS)
„FERRUM” S.A KATOWICE**

**SAWH PIPES ϕ 711 x 11,0 mm STEEL GRADE L485ME ACC. TO PN - EN ISO 3183
INCLUDING SPECIFICATION NO. 2015-08-00-KRDDD-D-PP-TS.1.1**

No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
I IZOSTAL S.A. VICE PRESIDENT COMMERCIAL DIRECTOR <i>mgr Michał Pietrek</i>	RAW MATERIAL	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDDD-D-PP-TS.1.1	Each delivery	Conformity of the delivery to the order; thermomechanically rolled steel	Technological Instruction NO. HF/PS/333/14
	PRODUCTION AND FORMING	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDDD-D-PP-TS.1.1	Each coil	Cold-forming of pipes	Technological Instruction NO. HF/PS/333/14
	Heat analysis	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDDD-D-PP-TS.1.1	1 x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ P, S $\leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDDD-D-PP-TS.1.1	Each delivery	According to the requirements of norms and technological instructions; Check the status of delivery; check the condition of the surface; geometry	Technological Instruction NO. HF/PS/333/14
4	Quality control of delivery (welding materials)	Acc. to standard specification	Each delivery	The delivery certificate of acceptance. Reception of welding materials: wires, electrode flux - checking the compatibility of delivery with the order	
II IZOSTAL S.A. CHAIRMAN OF THE BOARD CEO <i>mgr Marek Mazurek</i>	SAWH PIPES				
	Analysis of the chemical composition control	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDDD-D-PP-TS.1.1	2x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ P, S $\leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	VISUAL CONTROL surface condition geometry	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDDD-D-PP-TS.1.1	Each pipe	Visual inspection of the outer surface and an inner tube Acc. to point 9.10 Acc. to point 9.10.5	Technological Instruction NO. HF/PS/333/14
	DIMENSIONAL INSPECTION outer diameter roundness	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDDD-D-PP-TS.1.1	Each pipe	The pipe body $\pm 0,25\%D$ i.e. $\pm 1,77$ mm The ends of pipes - $\pm 1,2$ mm measurement using caliper The pipe body acc. to Table M.3 - $0,015xD$ i.e. 10,6mm. The ends of pipes $0,05\%xD$ i.e. 3,5mm	Technological Instruction NO. HF/PS/333/14
	transverse weld	PN-EN ISO 3183	100% of pipes	The pipe with weld connecting the tape is unacceptable. Acc. to Table M.4 - $[+1,1/-0,55mm]$	Technological Instruction NO. HF/PS/333/14
	Wall thickness	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDDD-D-PP-TS.1.1	Each pipe	Thickness measurement should be performed by the instrument ultrasonic in at least three locations along the length of the tube. Each location of measurement to study circumferentially in 4 points.	Technological Instruction NO. HF/PS/333/14

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
	length			Pipe length - 13,5 mb (-0,5/+0,5m); less length max 5% delivery, with a minimum length of pipe - 10m	
	straightness			Acc to point 9.11.3.4 - up to 0.2% of the length locally allowed on the length 1m / 4mm	
	unadjustment of the edges			Acc. to point M 6.1 Table M5 - max 1,0 xt	
	TUBES REPAIR	PN-EN ISO 3183 Attachment C + D SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe qualified to repair	The minimum wall thickness must be preserved. Repair of pipes after hydraulic test is unacceptable. Repair of fissure is unacceptable. Repair the pipe on the section 200m to the end is unacceptable. After repair must act in acc. to point C.4.6 - PN-EN ISO 3183. Permissible number of repairs on the section 6mb - max 3 repairs	Technological Instruction NO. HF/PS/333/14
	TIGHTNESS TEST	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 711x11,0 - pressure = 12,4 MPa; for pressure sealing 10 bar pipe ϕ 711x11,0 - pressure = 11,1 MPa; for pressure sealing 20 bar pipe ϕ 711x11,0 - pressure = 9,9 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
6	DESTRUCTIVE TESTS		1 x / shift		Technological Instruction NO. HF/PS/333/14
	Macroscopic Examination				
	Tensile strength test - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 6892-1	1T /batch 1W / batch	Acc. to Table M8 Rt0,5 485 ÷ 605 MPa; Rm 570 ÷ 760 MPa; Tensile strength connector Rm min 570 MPa	Technological Instruction NO. HF/PS/333/14
	Impact Charpy test V - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 148-1	3T / batch 3W and 3HAZ /batch	Acc. to Specification; Acc. to table G.2.-test temperature(-29oC) material - min 55J; weld and HAZ - min 40J	
	DWT Test	PN-EN ISO 3183	1x / batch	Min. 85% ductile fracture in temperature (-20oC)	
	Bending test	PN-EN ISO 5173	2x / batch	Acc. to point M.7.4.4 - Table M9	Technological Instruction NO. HF/PS/333/14
	Hardness test	PN-EN ISO 3183 - Acc. to point 9.10.6 Attachment J	All hardened places greater than 50 mm in any direction	Max 300 HV10	
	NON DESTRUCTIVE TESTS				
	Ultrasonic testing			U2 Class	
	weld	PN-EN ISO 10893-11	100% of pipes	Acc. to Table M10	
	ends of pipes	PN-EN ISO 10893-8		The area of width 25 at each end of the tube is free of lamellar cracks > 6,4 mm in circumferential direction. NDT test for the detection in 15 mm area along the seam on each side of the seam, lamellar cracks in U2 Class	Technological Instruction NO. HF/PS/333/14

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
8	a pipe body	PN-EN ISO 10893-9	100% of pipes	Acc. to Tabel M10 Class U2	Technological Instruction NO. HF/PS/333/14
	Radiographic testing untested weld and repaired place	PN-EN ISO 10893-6	100% of pipes	Acc. to point M 7.5.6 image class quality B	Technological Instruction NO. HF/PS/333/14
	Residual magnetism	PN-EN ISO 3183	1 pipe / 4 hour	Acc. to E.7. - max 30 Gauss	Technological Instruction NO. HF/PS/333/14
	THE ENDS OF THE TUBES Beveling/chamfering and root face	PN - ISO 6761	100% of pipe	Beveling 30° (+5/-0°); root face - 1,6mm (± 0,8mm) Max - 3 mm.	
9	Internal riser	PN-EN ISO 3183 SPECIFICATION NO. 2015-08- 00-KRDD-D-PP-TS.1.1 9.13.2.2.	Each end of the tube	Internal riser must be removed over a length of 100mm up to height max 0,5 mm above the surface of the pipe with smooth transition to surface of pipe Max - 3 mm.	Technological Instruction NO. HF/PS/333/14
	External riser			External riser must be removed over a length of 150mm, up to height max 0,5 mm above the surface of the pipe with smooth transition from no more than 7°. The thickness after grinding cannot be lower than minimal thickness of wall.	
9	Marking	PN-EN ISO 3183	100% of pipes	Acc. to point 11.2 at a distance of 100 mm from the end of the pipe and at least 25 mm from the weld; in permanent and legible way HF/ EN ISO 3183/ 711 /11/ L485ME PSL2 G E SAWH sign of controller/shortened heat No. / pipe no.	Technological Instruction NO. HF/PS/333/14
10.	Certificate of acceptance	PN-EN 10204	Each pipe	Inspection certificate 3.1 in English language	

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Krzysztof Kasprzycki

VICE-PRESIDENT OF THE BOARD
Łukasz Wańczyk



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Katowice, 04.01.2019

**MANUFACTURING PROCEDURE SPECIFICATION (MPS)
„FERRUM” S.A KATOWICE**

**SAWH PIPES ϕ 711 x 11,0 mm STEEL GRADE L415ME ACC. TO PN - EN ISO 3183
INCLUDING SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1**

No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
3	RAW MATERIAL	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	Conformity of the delivery to the order; thermomechanically rolled steel	Technological Instruction NO. HF/PS/333/14
	PRODUCTION AND FORMING	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each coil	Cold-forming of pipes	Technological Instruction NO. HF/PS/333/14
	Heat analysis	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	1 x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	According to the requirements of norms and technological instructions; Check the status of delivery; check the condition of the surface; geometry	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery (welding materials)	Acc. to standard specification	Each delivery	The delivery certificate of acceptance. Reception of welding materials:: wires, electrode flux - checking the compatibility of delivery with the order	
	SAWH PIPES				
	Analysis of the chemical composition control	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	2x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$ $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	VISUAL CONTROL surface condition geometry	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Visual inspection of the outer surface and an inner tube Acc. to point 9.10 Acc. to point 9.10.5	Technological Instruction NO. HF/PS/333/14
	DIMENSIONAL INSPECTION				
	outer diameter	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	The pipe body $\pm 0,25\%D$ i.e. $\pm 1,77$ mm The ends of pipes - $\pm 1,2$ mm measurement using circometer The pipe body acc. to Table M.3 - $0,015xD$ i.e. 10,6mm; The ends of pipes $0,5\%xD$ i.e. 3,5mm	Technological Instruction NO. HF/PS/333/14
3	roundness				
	transverse weld	PN-EN ISO 3183	100% of pipes	The pipe with weld connecting the tape is unacceptable. Acc to. Table M.4 - $[+1,1/-0,55mm]$	Technological Instruction NO. HF/PS/333/14
	Wall thickness	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Thickness measurement should be performed by the instrument ultrasonic in at least three locations along the length of the tube. Each location of measurement to study circumferentially in 4 points.	Technological Instruction NO. HF/PS/333/14

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COMMERCIAL DIRECTOR

mgr Michał Pietrek

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mgr Marek Mazurek

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
	length			Pipe length - 13,5 mb (-0,5/+0,5m); less length max 5% delivery, with a minimum length of pipe - 10m	
	straightness			Acc to point. 9.11.3.4 - up to 0.2% of the length locally allowed on the length 1m / 4mm	
	unadjustment of the edges			Acc. to point M 6.1 Table M5 - max 0,1xt	
IZOSTAL S.A. VICE PRESIDENT COMMERCIAL DIRECTOR mgr Michał Pietrek	TUBES REPAIR	PN-EN ISO 3183 Attachment C + D SPECIFICATION NO. 2015-08-00- KRDD-D-PP-TS.1.1	Each pipe qualified to repair	The minimum wall thickness must be preserved. Repair of pipes after hydraulic test is unacceptable. Repair of fissure is unacceptable. Repair the pipe on the section 200m to the end is unacceptable. After repair must act in acc. to point C.4.6 - PN-EN ISO 3183 Permissible number of repairs on the section 6mb - max 3 repairs	Technological Instructions NO. HF/PS/333/14
	TIGHTNESS TEST	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 711x11,0 - pressure= 10.4 MPa; for pressure sealing 10 bar pipe ϕ 711x11,0 - pressure = 9.2 MPa; for pressure sealing 20 bar pipe ϕ 711x11,0 - pressure = 7.9 MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
IZOSTAL S.A. CHAIRMAN OF THE BOARD CEO mgr Marek Mazurek	DESTRUCTIVE TESTS				Technological Instruction NO. HF/PS/333/14
	Macroscopic Examination		1 x/ shift		Technological Instruction NO. HF/PS/333/14
	Tensile strength test - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 6892-1	1T /batch 1W / batch	Acc. to Table M8 R _{t0,5} - 415 ÷ 565 MPa; R _m 520 ÷ 760 MPa Tensile strength connector R _m min 520 MPa	Technological Instruction NO. HF/PS/333/14
	Impact Charpy test V - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 148-1	3T / batch 3W i 3HAZ /batch	Acc. to Specification; Acc. to table G.2. - test temperature (-29°C) material - min 40J; weld and HAZ - min 40J	Technological Instruction NO. HF/PS/333/14
	DWT Test	PN-EN ISO 3183	1x / batch	Min. 85% ductile fracture in temperature (-20°C)	
	Bending test	PN-EN ISO 5173	2x / batch	Acc. to point M.7.4.4 - Table M9	
	Hardness test	PN-EN ISO 3183 - Acc. to point 9.10.6 Attachment J	All hardened places greater than 50 mm in any direction	Max 270 HV10	
0001667	NON DESTRUCTIVE TESTS				
	Ultrasonic testing weld	PN-EN ISO 10893-11	100% of pipes	U2 Class Acc. to Table M10 The area of width 25 at each end of the tube is free of	Technological Instruction NO. HF/PS/333/14

No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
	ends of pipes	PN-EN ISO 10893-8		lamellar cracks > 6,4 mm in circumferential direction. NDT test for the detection in 15 mm area along the seam, on each side of the lamellar cracks in U2 Class	Technological Instruction NO. HF/PS/333/14
	a pipe body	PN-EN ISO 10893-9	100% of pipes	Acc. to Table M10 Class U2	Technological Instruction NO. HF/PS/333/14
	Radiographic testing untested weld and repaired place	PN-EN ISO 10893-6	100% of pipes	Acc. to point M 7.5.6 image class quality B	Technological Instruction NO. HF/PS/333/14
	Residual magnetism	PN-EN ISO 3183	1 pipe / 4 hour	Acc. to E.7. - max 30 Gauss	Technological Instruction NO. HF/PS/333/14
	THE ENDS OF THE TUBES Beveling/chamfering and root face	PN - ISO 6761	100% of pipe	Beveling 30° (+5/-0°); root face - 1,6mm (± 0,8mm) Max - 3 mm.	Technological Instruction NO. HF/PS/333/14
	Internal riser	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00- KRDD-D-PP-TS.1.1 9.13.2.2.	Each end of the tube	Internal riser must be removed over a length of 100mm up to height max 0,5 mm above the surface of the pipe with smooth transition to surface of pipe Max - 3 mm.	
	External riser			External riser must be removed over a length of 150mm, up to height max 0,5 mm above the surface of the pipe with smooth transition from no more than 7°. The thickness after grinding cannot be lower than minimal thickness of wall.	
9	Marking	PN-EN ISO 3183	100% of pipes	Acc. to point 11.2 at a distance of 100 mm from the end of the pipe and at least 25 mm from the weld; in permanent and legible way HF/ EN ISO 3183/ 711 / 11 / L415ME PSL2 G E SAWH sign of controller/shortened No. melt/number of pipe	Technological Instruction NO. HF/PS/333/14
10.	Inspection certificate	PN-EN 10204	Each pipe	Inspection certificate 3.1 in English language	

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Arzysztof Kasprzycki

VICE-PRESIDENT OF THE BOARD
Lukasz Wąrczyk

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FERRUM S.A.

Katowice, 04.01.2019

**MANUFACTURING PROCEDURE SPECIFICATION (MPS)
„FERRUM” S.A. KATOWICE**

**SAWH PIPES ϕ 711 x 12,5 mm STEEL GRADE L415ME ACC. TO PN - EN ISO 3183
INCLUDING SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1**

No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
3	RAW MATERIAL	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	Conformity of the delivery to the order; thermomechanically rolled steel	Technological Instruction NO. HF/PS/333/14
	PRODUCTION AND FORMING	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each coil	Cold-forming of pipes	Technological Instruction NO. HF/PS/333/14
	Heat analysis	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	1 x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$; $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	Quality control of delivery	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each delivery	According to the requirements of norms and technological instructions; Check the status of delivery; check the condition of the surface; geometry	Technological Instruction NO. HF/PS/333/14
3	Quality control of delivery (welding materials)	Acc. to standard specification	Each delivery	The delivery certificate of acceptance. Reception of welding materials: wires, electrode flux - checking the compatibility of delivery with the order	
	SAWH PIPES				
	Analysis of the chemical composition control	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	2x / melt	Acc. to point M 4.1.1 Table M1 $C \leq 0,10\%$; $Mo \leq 0,10\%$; $P, S \leq 0,035$; Coal Equivalent CE pcm max 0,21%	Technological Instruction NO. HF/PS/333/14
	VISUAL CONTROL	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Visual inspection of the outer surface and an inner tube	Technological Instruction NO. HF/PS/333/14
3	surface condition			Acc. to point 9.10	
	geometry			Acc. to point 9.10.5	
	DIMENSIONAL INSPECTION				
	outer diameter	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	The pipe body $\pm 0,25\%D$ z tj. $\pm 1,77$ mm The ends of pipes - $\pm 1,2$ mm measurement using circometer	Technological Instruction NO. HF/PS/333/14
3	roundness			The pipe body acc. to Table M.3 - $0,015xD$ i.e. 10,6mm The ends of pipes $0,5\%xD$ i.e. 3,5mm	Technological Instruction NO. HF/PS/333/14
	transverse weld	PN-EN ISO 3183	100% of pipes	The pipe with weld connecting the tape is unacceptable.	Technological Instruction NO. HF/PS/333/14
	Wall thickness	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1	Each pipe	Acc. to. Table M.4 - $[+1,25/-0,625mm]$ Thickness measurement should be performed by the instrument ultrasonic in at least three locations along the length of the tube. Each location of measurement to study	Technological Instruction NO. HF/PS/333/14

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
	length			circumferentially in 4 points.	
	straightness			Pipe length - 13,5 mb (-0,5/+0,5m); less length max 5% delivery, with a minimum length of pipe - 10m	
	unadjustment of the edges			Acc to point 9.11.3.4 - up to 0.2% of the length locally allowed on the length 1m / 4mm	
	TUBES REPAIR	PN-EN ISO 3183 Attachment C + D SPECIFICATION NO. 2015-08-00- KRDD-D-PP-TS.1.1	Each pipe qualified to repair	Acc. to point M 6.1 Table M5 - max 0,1xt The minimum wall thickness must be preserved. Repair of pipes after hydraulic test is unacceptable. Repair of fissure is unacceptable. Repair the pipe on the section 200m to the end is unacceptable. After repair must act in acc. to point C.4.6 - PN-EN ISO 3183 Permissible number of repairs on the section 6mb - max 3 repairs	Technological Instruction NO. HF/PS/333/14
	TIGHTNESS TEST	PN-EN ISO 3183 Acc. to point 10.2.6.6.	Each pipe	pipe ϕ 711x12,5 - pressure= 12.0 MPa; for pressure sealing 10 bar pipe ϕ 711x12,5 - pressure = 10.8 MPa; for pressure sealing 20 bar pipe ϕ 711x12,5 - pressure = 9.5MPa; for pressure sealing 30 bar Time test 10s	Technological Instruction NO. HF/PS/333/14
	DESTRUCTIVE TESTS				
	Macroscopic Examination		1 x/ shift		Technological Instruction NO. HF/PS/333/14
	Tensile strength test - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 6892-1	1T / batch 1W / batch	Acc. to Table M8 R _{ts} - 415 ÷ 565 MPa; Rm 520 ÷ 760 MPa Tensile strength connector Rm min 520 MPa	Technological Instruction NO. HF/PS/333/14
	Impact Charpy test V - the pipe body (T, W, L) - weld (T, W, L)	PN-EN ISO 148-1	3T / batch 3W i 3HAZ /batch	Acc. to Specification; Acc. to table G.2. - test temperature (-29°C) material - min 40]; weld and HAZ - min 40]	
	DWT Test	PN-EN ISO 3183	1x / batch	Min. 85% ductile fracture in temperature (-20°C)	
	Bending test	PN-EN ISO 5173	2x / batch	Acc. to point M.7.4.4 - Table M9	Technological Instruction NO. HF/PS/333/14
	Hardness test	PN-EN ISO 3183 - Acc. to point 9.10.6 Attachment J	All hardened places greater than 50 mm in any direction	Max 270 HV10	
	NON DESTRUCTIVE TESTS				

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No.	DESCRIPTION	STANDARD REFERENCE	FREQUENCY	REQUIREMENTS	NORM INTERNAL
9.	Ultrasonic testing			U2 Class	
	weld	PN-EN ISO 10893-11	100% of pipes	Acc. to Table M10 The area of width 25 at each end of the tube is free of lamellar cracks > 6,4 mm in circumferential direction.	Technological Instruction NO. HF/PS/333/14
	ends of pipes	PN-EN ISO 10893-8		NDT test for the detection in 15 mm area along the seam on each side of the fracture, lamellar cracks in U2 Class	
	a pipe body	PN-EN ISO 10893-9	100% of pipes	Acc. to Table M10 Class U2	Technological Instruction NO. HF/PS/333/14
	Radiographic testing untested weld and repaired place	PN-EN ISO 10893-6	100% of pipes	Acc. to point M 7.5.6 image class quality B	Technological Instruction NO. HF/PS/333/14
	Residual magnetism	PN-EN ISO 3183	1 pipe / 4 hour	Acc. to E.7. - max 30 Gauss	Technological Instruction NO. HF/PS/333/14
	THE ENDS OF THE TUBES				
	Beveling/chamfering and root face	PN - ISO 6761	100% of pipe	Beveling 30° (+5/-0°); root face - 1,6mm (± 0,8mm) Max - 3 mm.	
	Internal riser	PN-EN ISO 3183 SPECIFICATION NO. 2015-08-00-KRDD-D-PP-TS.1.1 9.13.2.2.	Each end of the tube	Internal riser must be removed over a length of 100mm up to height max 0,5 mm above the surface of the pipe with smooth transition to surface of pipe Max - 3 mm.	Technological Instruction NO. HF/PS/333/14
	External riser			External riser must be removed over a length of 150mm, up to height max 0,5 mm above the surface of the pipe with smooth transition from no more than 7°. The thickness after grinding cannot be lower than minimal thickness of wall.	
10.	Marking	PN-EN ISO 3183	100% of pipes	Acc. to point 11.2 at a distance of 100 mm from the end of the pipe and at least 25 mm from the weld; in permanent and legible way HF/ EN ISO 3183/ 711 /12,5/ L415ME PSL2 G E SAWH sign of controller/shortened No. melt/number of pipe	Technological Instruction NO. HF/PS/333/14
	Inspection certificate	PN-EN 10204	Each pipe	Inspection certificate 3.1 in English language	

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Nr dokumentu/ Document No	Data/ Date	Strona/ Page
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Nr potwierdzenia/ Contract No	Zamówienie Nr/ Order No	

FERRUM S.A. POSIADA CERTYFIKATY SYSTEMÓW ZARZĄDZANIA WG ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 ORAZ ISO 14001.
FERRUM S.A. POSSES THE CERTIFICATES FOR SYSTEMS MANAGEMENT ACC. TO ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 AND ISO 14001.

Zamawiający/Customer	Wyrob/Product:	Helically welded steel pipes SAW H Without anticorrosive protection.
	Wykonano wg norm i wymagań/ Manufactured in compliance with standards and other requirements:	PN-EN ISO 3183
	Oznaczenie stali/Steel designation:	L415ME PSL 2
	Stan dostawy/ Condition of delivery:	M
	Numer artykułu klienta/ Purchaser article number:	
	Wymagania dodatkowe/ Supplementary requirements:	Ends' bevelled acc. to PN-EN ISO 3183 div. 9.12.5.2
	Awizo Nr/Advice No (Wagon Nr/Car No):	

Material oznaczono/ Material was marked:	IF EN ISO 3183 711 x 11,0 L415ME PSL2 G E SAWH internal No/ plant No, Quality Control Stamp KJ	A04/B06
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Poz/ Item	Wymiary/ Dimensions [mm]	Wytop Nr/ Heat No	Przebiegowy Nr Inventar No	Serie Phase	Długość/ Length [m]	Masa/ Weight [kg]
1	711 x 11,0	810612	19840	1		
		810613	19845	1		
			TMA TOTAL	2	26,00	

BADANIA MECHANICZNE / MECHANICAL TESTS

Nr próby/ Test No	Kierunek/ Direction of test piece	Wymiary/ Dimensions a x b [mm]	Prężenie płyty/ Yield strength R _{0,2} MPa	Wytrzymałość rozciągania/ Tensile strength R _m MPa	R _{0,2} /R _m	Wydłużenie/ Elongation A ₅ [%]	Udarność (Charpy-V)/Notched-bar impact test (Charpy-V) [J]										Próba gięcia/ Bending test	DWT Temperatura badania:-20°C			
							Wymiary/Dimensions: 10x8,0 [mm]														
							Współczynnik bezpieczeństwa/Factor of safety: 0,72														
							1* - Badanie korpusu w temperaturze/ Body test at temperature : -29°C 2** - Badanie spoiny i SWC w temperaturze/ Weld and HAZ test at temperature: -29°C														
							1*					2**									
Wartość jednostkowa (J) / Single value (J)					Σ/n					Wartość jednostkowa (J) / Single value (J)					Σ/n						
415÷ 565		520÷ 760		min. 520		max 0,85		min. 18		40		40		40		40		4180°		Σ/2	
19440/101	TR	11,0x25,0	510	627		0,81	30,0	267	261	275	268	40	40	40	40	40	40	5t	≥85%		
19440/101	W	11,0x25,0			689								107	101	109	106	positive	ductile fracture			
19440/101	C	SWC											181	171	189	180					
19445/151	TR	11,0x25,0	543	655		0,83	30,0	283	275	293	284								100%		
19445/151	W	11,0x25,0			719								136	115	123	125	positive	ductile fracture			
19445/151	C	SWC											139	157	163	153					

1* - Materiał podstawowy/Base material, 2** - Złącze spawane/Weld, SWC - strefa wpływu ciepła/HAZ
TR - poprzeczne do osi rury, W - prostopadłe do osi spoiny ze spoiną w środku próbki, C - prostopadłe do osi spoiny ze SWC w środku próbki.
TR- transverse to axis of the pipe, W - perpendicularity to the axis of the weld seam, specimen with middle-sized weld, C -perpendicular to the axis of the weld from HAZ in the center of the sample.

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytop Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	810612	0,08	1,65	0,322	0,012	0,003	0,03	0,01	0,02	0,005	0,0450	0,044	0,0530	0,0066	0,0210	0,18
2	810612	0,07	1,68	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17
2	810512	0,07	1,69	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17

COMMERCIAL DIRECTOR

mgr Michał Pietrek

Świadectwo odbioru ważne jest tylko w oryginale/Inspection Certificate is valid only in original

Krzysztof Kasprzyski

VICE-PRESIDENT OF THE BOARD

Łukasz Marzec

**FERRUM S.A.**
ŚWIADECTWO ODBIORU 3.1 A02
 zgodnie z PN-EN 10204
Inspection certificate 3.1
 acc. to PN-EN 10204

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Nr potwierdzenia/ Contract No		Zamówienie Nr/ Order No			

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytóp Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	830080	0,09	1,64	0,345	0,013	0,003	0,03	0,01	0,01	0,005	0,0450	0,038	0,0526	0,0054	0,0230	0,19
2	830080	0,09	1,67	0,340	0,016	0,004	0,03	0,02	0,01	0,003	0,041	0,038	0,053	0,006	0,022	0,19
2	830080	0,09	1,66	0,340	0,016	0,004	0,04	0,02	0,01	0,006	0,043	0,044	0,053	0,006	0,024	0,19

 Wg Świadectw Huty/Acc. to works certificates:
 1 - Analiza wytopowa/Heat Analysis, 2 - Analiza kontrolna/Product analysis

Sprawdzenie wizualne/Kontrola wymiarów/ Visual and dimensional inspection:	100 % rur - wynik pozytywny. 100 % pipes - result positive.	D01
Próba szczelności/Leak - proof test:	Próba wodna - $p_1 = 9,2 \text{ MPa}$, $p_R = 20 \text{ bar}$ (napężenie obwodowe odpowiada 90% $R_{10,5}$) - czas wytrzymania 10 sekund - wynik pozytywny 100% rur Hydrostatic Test - $p_1 = 9,2 \text{ MPa}$, $p_R = 20 \text{ bar}$ (testing pressure equals to 90% $R_{10,5}$) - hold for 10 sec. Result - positive 100% of pipes.	D51
Badania nieniszczące/NDT:	100% spoin spiralnych - badania ultradźwiękowe wg PN-EN ISO 10893-11 bez akceptacji B i U2H - wynik pozytywny. Weld seam ultrasonically tested acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result. Rozwarstwienie na krawędziach taśmy: badania ultradźwiękowe wg PN-EN ISO 10893-6 poziom dopuszczalności U2 - wynik pozytywny. Laminar imperfections at the stripes edges - seam area acc. to PN-EN ISO 10893-6 acceptance level U2 - positive result. Rozwarstwienia na końcach rur - badania ultradźwiękowe wg PN-EN ISO 10893-6 poziom dopuszczalności U2 - wynik pozytywny. All pipes ends was tested for laminar imperfections acc. to PN-EN ISO 10893-6 acceptance level U2 - positive result. Rozwarstwienia na korpusie rury: badania ultradźwiękowe wg PN-EN ISO 10893-6 poziom dopuszczalności U2 - wynik pozytywny. Stratification of the body of the pipe - seam area acc. to PN-EN ISO 10893-6 acceptance level U2 - positive result. Badania radiograficzne spoin niebadanych radiograficznie wg PN-EN ISO 10893-6 klasa jakości obrazu B - wynik pozytywny. Radiographic testing untested weld line seam area - radiographically tested acc. to PN-EN 10893-6 class B - positive result.	D02
Inne badania/Other tests:	Badania makroskopowe spoiny: zgodność z PN-EN ISO 3183 - wynik pozytywny. Metallographic testing weld seam: acc. to PN-EN ISO 3183 - positive result. Magnetyzm szczelności: zgodność z PN-EN ISO 3183 - wynik pozytywny. Residual magnetyzm: zgodność z PN-EN ISO 3183 - wynik pozytywny. Badania właściwości mechanicznych: zgodność z PN-EN ISO 3183 - wynik pozytywny. Mechanical properties: acc. to PN-EN ISO 3183 - positive result.	D53

NUMERY RUR/PIPES NO

Nr wytopu skróconego/ Internal No	Nr próby/ Test No	Nr rur/ Pipe No
19440	19440/10	128
19445	19445/15	

 NINIEJSZYM POTWIERDZAMY, ŻE WYŻEJ WYMNIENIONY MATERIAŁ ZOSTAŁ ZBADANY I SPEŁNIA WARUNKI POTWIERDZENIA ZAMÓWIENIA
 WE CERTIFY THAT THE ABOVE DESCRIBED PRODUCTS HAVE BEEN TESTED AND CONFORM WITH THE TERMS OF THE ORDER CONFIRMATION

Z01

 Decyzja Nr M-09-21/6-15 z dnia 28.10.2015 r. Urząd Dozoru Technicznego w Warszawie Oddział w Katowicach uprawnili przedsiębiorstwo „Ferrum” S.A. do wytwarzania stalowych rur spawanych i zgrzewanych przeznaczonych do budowy, naprawy i modernizacji urządzeń technicznych podlegających dozorowi technicznemu.
 Against Decision No M-09-21/6-15 dated 28.10.2015 r. the Main Inspection Office in Warsaw, the Branch Office in Katowice, has authorised the company „Ferrum” S.A. to manufacture welded pipes destined for construction and repair of engineering constructions subject of technical inspection.


- 13
- FERRUM S.A. ul. Porcelanowa 11 40 - 246 Katowice POLAND
- FERRUM_SAWH_PN - EN ISO 3183
- PN-EN ISO 3183; 2013+A1:2018
- Krajowa deklaracja właściwości użytkowych / National declaration of performance Nr/No. S/001/2019
- Deklarowane właściwości użytkowe/ Declared performance:

Gatunek /Grade	$R_{10,5}$ (MPa)	R_m (MPa)	A_{min} (%)	CE _{PCM} max. (%)	KV korpusu rury/ pipe body [0°C] min. (J)	KV spoiny i SWC / weld and HAZ [0°C] min. (J)
L415ME	415 - 565	520 - 760	18	0,25	40	40

7. „ZETOM” Katowice - AC 005
8. <http://www.ferrum.com.pl>

IZOSTAL S.A.
 VICE PRESIDENT
 COMMERCIAL DIRECTOR
 mgr Michał Pietrek

IZOSTAL S.A.
 CHAIRMAN OF THE BOARD
 CEO
 mgr Marek Mazurek

000172

 Kontrola Jakości /
 Quality control

 Kontrola Jakości /
 Quality control

 PRESIDENT OF THE BOARD
 CEO

 Przedstawiciel zamawiającego/
 Purchaser's representative

VICE-PRESIDENT OF THE BOARD



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<http://www.ferrum.com.pl>

Nr dokumentu/ Document No	Data/ Date	Strona/ Page
S/2019	2019-01-04	1 / 2
Nr potwierdzenia/ Contract No	Zamówienie Nr/ Order No	

FERRUM S.A. POSIADA CERTYFIKATY SYSTEMÓW ZARZĄDZANIA WG ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 ORAZ ISO 14001.
FERRUM S.A. POSSES THE CERTIFICATES FOR SYSTEMS MANAGEMENT ACC. TO ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 AND ISO 14001.

Zamawiający/Customer	Wyrob/Product:	Helically welded steel pipes SAW H Without anticorrosive protection.
	Wykonano wg norm i wymagań/ Manufactured in compliance with standards and other requirements:	PN-EN ISO 3183
	Oznaczenie stali/Steel designation:	L415ME PSL 2
	Stan dostawy/ Condition of delivery:	M
	Numer artykułu klienta/ Purchaser article number:	
	Wymagania dodatkowe/ Supplementary requirements:	Ends' bevelled acc. to PN-EN ISO 3183 div. 9.12.5.2
	Awizo Nr/Advice No (Wagon Nr/Car No):	

Material oznaczono/ Material was marked:	IF EN ISO 3183 508 x 8,0 L415ME PSL2 G E SAWH internal No/ pipe No, Quality Control Stamp KJ	A04/B06
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Poz/ Item	Wymiary/ Dimensions [mm]	Wytóp Nr/ Heat No	Wytóp Nr/ Heat No	Szkieł Pla	Długość/ Length [m]	Masa/ Weight [kg]
1	508 x 8,0	810612	1950	1		
			1950	2	26,00	

BADANIA MECHANICZNE / MECHANICAL TESTS

C00	C01 C02	Kierunek/ Direction of test piece	Wymiary/ Dimensions a x b [mm]	C04 C05 C06 C07 C08 C09 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C33 C34 C35 C36 C37 C38 C39 C40 C41 C42 C43 C44 C45 C46 C47 C48 C49 C50 C51 C52 C53 C54 C55 C56 C57 C58 C59 C60 C61 C62 C63 C64 C65 C66 C67 C68 C69 C70 C71 C72 C73 C74 C75 C76 C77 C78 C79 C80 C81 C82 C83 C84 C85 C86 C87 C88 C89 C90 C91 C92 C93 C94 C95 C96 C97 C98 C99 C100	C101 C102 C103 C104 C105 C106 C107 C108 C109 C110 C111 C112 C113 C114 C115 C116 C117 C118 C119 C120 C121 C122 C123 C124 C125 C126 C127 C128 C129 C130 C131 C132 C133 C134 C135 C136 C137 C138 C139 C140 C141 C142 C143 C144 C145 C146 C147 C148 C149 C150 C151 C152 C153 C154 C155 C156 C157 C158 C159 C160 C161 C162 C163 C164 C165 C166 C167 C168 C169 C170 C171 C172 C173 C174 C175 C176 C177 C178 C179 C180 C181 C182 C183 C184 C185 C186 C187 C188 C189 C190 C191 C192 C193 C194 C195 C196 C197 C198 C199 C200	C201 C202 C203 C204 C205 C206 C207 C208 C209 C210 C211 C212 C213 C214 C215 C216 C217 C218 C219 C220 C221 C222 C223 C224 C225 C226 C227 C228 C229 C230 C231 C232 C233 C234 C235 C236 C237 C238 C239 C240 C241 C242 C243 C244 C245 C246 C247 C248 C249 C250 C251 C252 C253 C254 C255 C256 C257 C258 C259 C260 C261 C262 C263 C264 C265 C266 C267 C268 C269 C270 C271 C272 C273 C274 C275 C276 C277 C278 C279 C280 C281 C282 C283 C284 C285 C286 C287 C288 C289 C290 C291 C292 C293 C294 C295 C296 C297 C298 C299 C300	C301 C302 C303 C304 C305 C306 C307 C308 C309 C310 C311 C312 C313 C314 C315 C316 C317 C318 C319 C320 C321 C322 C323 C324 C325 C326 C327 C328 C329 C330 C331 C332 C333 C334 C335 C336 C337 C338 C339 C340 C341 C342 C343 C344 C345 C346 C347 C348 C349 C350 C351 C352 C353 C354 C355 C356 C357 C358 C359 C360 C361 C362 C363 C364 C365 C366 C367 C368 C369 C370 C371 C372 C373 C374 C375 C376 C377 C378 C379 C380 C381 C382 C383 C384 C385 C386 C387 C388 C389 C390 C391 C392 C393 C394 C395 C396 C397 C398 C399 C400	C401 C402 C403 C404 C405 C406 C407 C408 C409 C410 C411 C412 C413 C414 C415 C416 C417 C418 C419 C420 C421 C422 C423 C424 C425 C426 C427 C428 C429 C430 C431 C432 C433 C434 C435 C436 C437 C438 C439 C440 C441 C442 C443 C444 C445 C446 C447 C448 C449 C450 C451 C452 C453 C454 C455 C456 C457 C458 C459 C460 C461 C462 C463 C464 C465 C466 C467 C468 C469 C470 C471 C472 C473 C474 C475 C476 C477 C478 C479 C480 C481 C482 C483 C484 C485 C486 C487 C488 C489 C490 C491 C492 C493 C494 C495 C496 C497 C498 C499 C500	C501 C502 C503 C504 C505 C506 C507 C508 C509 C510 C511 C512 C513 C514 C515 C516 C517 C518 C519 C520 C521 C522 C523 C524 C525 C526 C527 C528 C529 C530 C531 C532 C533 C534 C535 C536 C537 C538 C539 C540 C541 C542 C543 C544 C545 C546 C547 C548 C549 C550 C551 C552 C553 C554 C555 C556 C557 C558 C559 C560 C561 C562 C563 C564 C565 C566 C567 C568 C569 C570 C571 C572 C573 C574 C575 C576 C577 C578 C579 C580 C581 C582 C583 C584 C585 C586 C587 C588 C589 C590 C591 C592 C593 C594 C595 C596 C597 C598 C599 C600	C601 C602 C603 C604 C605 C606 C607 C608 C609 C610 C611 C612 C613 C614 C615 C616 C617 C618 C619 C620 C621 C622 C623 C624 C625 C626 C627 C628 C629 C630 C631 C632 C633 C634 C635 C636 C637 C638 C639 C640 C641 C642 C643 C644 C645 C646 C647 C648 C649 C650 C651 C652 C653 C654 C655 C656 C657 C658 C659 C660 C661 C662 C663 C664 C665 C666 C667 C668 C669 C670 C671 C672 C673 C674 C675 C676 C677 C678 C679 C680 C681 C682 C683 C684 C685 C686 C687 C688 C689 C690 C691 C692 C693 C694 C695 C696 C697 C698 C699 C700																																																																																																
											Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R _{0,2} /R _m	Wytężenie/ Elongation A _g [%]	R

1* - Materiał podstawowy/Base material, 2** - Złącze spawane/Weld, SWC - strefa wpływu ciepła/HAZ

TR - poprzeczne do osi rury, W - prostopadle do osi spoiny ze spoiną w środku próbki, C - prostopadle do osi spoiny z SWC w środku próbki.

TR- transverse to axis of the pipe, W - perpendicularity to the axis of the weld seam, specimen with middle-sized weld, C -perpendicular to the axis of the weld from HAZ in the center of the sample.

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytop Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	810612	0,08	1,65	0,322	0,012	0,003	0,03	0,01	0,02	0,005	0,0450	0,044	0,0530	0,0066	0,0210	0,18
2	810612	0,07	1,68	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17
2	810612	0,07	1,69	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17

Świadectwo odbioru ważne jest tylko w oryginale/Inspection Certificate is valid only in original

000173

Krzysztof Kęsprzycki

Lukasz Warczak



FERRUM S.A.

ŚWIADECTWO ODBIORU 3.1 A02

zgodnie z PN-EN 10204

Inspection certificate 3.1

acc. to PN-EN 10204

40-246 Katowice
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http://www.ferrum.com.pl

Nr dokumentu/ Document No	S/2019	Data/ Date	2019-01-04	Strona/ Page	2 / 2
Nr potwierdzenia/ Contract No		Zamówienie Nr/ Order No			

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytóp Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	830080	0,09	1,64	0,345	0,013	0,003	0,03	0,01	0,01	0,005	0,0450	0,038	0,0526	0,0054	0,0230	0,19
2	830080	0,09	1,67	0,340	0,016	0,004	0,03	0,02	0,01	0,003	0,041	0,038	0,053	0,006	0,022	0,19
2	830080	0,09	1,66	0,340	0,016	0,004	0,04	0,02	0,01	0,006	0,043	0,044	0,053	0,006	0,024	0,19

Wg świadectw Huty/Acc. to works certificates:
1 - Analiza wytopowa/Heat Analysis, 2 - Analiza kontrolna/Product analysis

Sprawdzenie wizualne/Kontrola wymiarów/ Visual and dimensional inspection:	100 % rur - wynik pozytywny. 100 % pipes - result positive.	D01
Próba szczelności/Leak - proof test:	Próba wodna - $p_t = 7,0$ MPa, $p_h = 20$ bar (napężenie obwodowe odpowiada 90% $R_{0,5}$) - czas wytrzymania 10 sekund - wynik pozytywny - 100% rur Hydrostatic Test - $p_t = 7,0$ MPa, $p_h = 20$ bar (testing pressure equals to 90% $R_{0,5}$) - hold for 10 sec. Result - positive 100% of pipes.	D51
Badania nieniszczące/NDT:	100% spoin spiralnych - badania ultradźwiękowe wg PN-EN ISO 10893-11 akceptacji U2/U2H - wynik pozytywny. Weld seam ultrasonically tested acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result. Rozwarstwienia na krawędziach taśmy: badania ultradźwiękowe wg PN-EN ISO 10893-6 dopuszczalności U2 - wynik pozytywny. Laminar imperfections at the stripes edges - seam area acc. to PN-EN ISO 10893-8 akceptacji U2 - positive result. All pipes ends was tested for laminar imperfections acc. to PN-EN ISO 10893-8 akceptacji U2 - positive result. Rozwarstwienia na korpusie rury: badania ultradźwiękowe wg PN-EN ISO 10893-6 dopuszczalności U2 - wynik pozytywny. Stratification of the body of the pipe - seam area acc. to PN-EN ISO 10893-6 akceptacji U2 - positive result. Badania radiograficzne spoin niebadanych i miejsc zgrzewanych wg PN-EN ISO 10893-6 dopuszczalności B - wynik pozytywny. Radiographic testing untested weld and seam area radiographically tested acc. to PN-EN ISO 10893-6 class B - positive result.	D02
Inne badania/Other tests:	Badania makroskopowe - geometria spoin wg PN-EN ISO 10893-11 - wynik pozytywny. Metallographic testing - seam area acc. to PN-EN ISO 10893-11 - positive result. Magnetizm szczątkowy - poziom zanieczyszczenia ≤ 30 Gauss. Residual magnetism - level of contamination ≤ 30 Gauss. Badanie twardeści materiału - wynik zgodny z dopuszczalnością (HAZ) max. 270 HV10 - wynik pozytywny. Hardness testing - pipe body and HAZ of welded pipe max. 270 HV10 - positive result.	D53

NUMERY RUR/PIPES NO

Nr wytopu skrótowego/ Internal No	Nr próby/ Test No	Nr rury/ Pipe No
19440	19440/10	128
19445	19445/15	1

NINIEJSZYM POTWIERDZAMY, ŻE WYŻEJ WYMIENIONY MATERIAŁ ZOSTAŁ ZBADANY I SPEŁNIA WARUNKI POTWIERDZENIA ZAMÓWIENIA
WE CERTIFY THAT THE ABOVE DESCRIBED PRODUCTS HAVE BEEN TESTED AND CONFORM WITH THE TERMS OF THE ORDER CONFIRMATION

Z01

Odczyt Nr M-09-21/6-15 z dnia 28.10.2015 r. Urząd Dozoru Technicznego w Warszawie Oddział w Katowicach uprawnili przedsiębiorstwo „Ferrum” S.A. do wytwarzania stalowych rur spawanych i zgrzewanych przeznaczonych do budowy, naprawy i modernizacji urządzeń technicznych podlegających dozorowi technicznemu.
Against Decision No M-09-21/6-15 dated 28.10.2015 r. the Main Inspection Office in Warsaw, the Branch Office in Katowice, has authorised the company „Ferrum” S.A. to manufacture welded pipes destined for construction and repair of engineering constructions subject of technical inspection.



IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
mgr Marek Mazurek

- 13
- FERRUM S.A. ul. Porcelanowa 11 40 - 246 Katowice POLAND
- FERRUM SAWH. PN - EN ISO 3183
- PN-EN ISO 3183; 2013+A1:2018
- Krajowa deklaracja właściwości użytkowych / National declaration of performance Nr/No. S/001/2019
- Deklarowane właściwości użytkowe/ Declared performance:

Gatunek Grade	$R_{0,5}$ (MPa)	R_m (MPa)	A_{min} (%)	CE _{PCM} max. (%)	KV korpusu rury/ pipe body [0°C] min. (1)	KV spoiny i SWC / weld and HAZ [0°C] min. (2)
L415ME	415 - 565	520 - 760	18	0,25	40	40

7. „ZETOM” Katowice - AC 005
8. <http://www.ferrum.com.pl>

Kontrola Jakości /
Quality control

Kontrola Jakości /
Quality control

PRESIDENT OF THE BOARD
CEO

Przedstawiciel zamawiającego/
Purchaser's representative

000174 Z03

Świadectwo odbioru ważne jest tylko w oryginale/Inspection Certificate is valid only in original

Lukasz Warczyk

**FERRUM S.A.**

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e-mail: ferrum@ferrum.com.pl
http://www.ferrum.com.pl

ŚWIADECTWO ODBIORU 3.1 A02
zgodnie z PN-EN 10204
Inspection certificate 3.1
acc. to PN-EN 10204

Nr dokumentu/ Document No	S/2019	Data/ Date	2019-01-04	Strona/ Page	1 / 2
Nr potwierdzenia/ Contract No		Zamówienie Nr/ Order No			

FERRUM S.A. POSIADA CERTYFIKATY SYSTEMÓW ZARZĄDZANIA WG ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 ORAZ ISO 14001.
FERRUM S.A. POSSES THE CERTIFICATES FOR SYSTEMS MANAGEMENT ACC. TO ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 AND ISO 14001.

Zamawiający/Customer	Wyrób/Product:	Helically welded steel pipes SAW H Without anticorrosive protection.
	Wykonano wg norm i wymagań/ Manufactured in compliance with standards and other requirements:	PN-EN ISO 3183
	Oznaczenie stali/Steel designation:	L485ME PSL 2
	Stan dostawy/ Condition of delivery:	M
	Numer artykułu klienta/ Purchaser article number:	
	Wymagania dodatkowe/ Supplementary requirements:	Ends' bevelled acc. to PN-EN ISO 3183 div. 9.12.5.2
	Awizo Nr/Advice No (Wagon Nr/Car No):	

Material oznaczono/ Material was marked:	F EN ISO 3183 711 x 11,0 L485ME PSL2 G E SAWH internal No/ pipe No, Quality Control Stamp KJ
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Poz/ Item	Wymiary/ Dimensions [mm]	Wytóp Nr/ Heat No	Waga Weight	Szac. Place	Długość/ Length [m]	Masa/ Weight [kg]
1	711 x 11,0	810612	19,44	1		
			19,44	2	26,00	

BADANIA MECHANICZNE/MECHANICAL TESTS

C00	C01 C02	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29	C30	C31	C32	C33	C34	C35	C36	C37	C38	C39	C40	C41	C42	C43	C44	C45	C46	C47	C48	C49	C50	C51	C52	C53	C54	C55	C56	C57	C58	C59	C60	C61	C62	C63	C64	C65	C66	C67	C68	C69	C70	C71	C72	C73	C74	C75	C76	C77	C78	C79	C80	C81	C82	C83	C84	C85	C86	C87	C88	C89	C90	C91	C92	C93	C94	C95	C96	C97	C98	C99	C100	C101	C102	C103	C104	C105	C106	C107	C108	C109	C110	C111	C112	C113	C114	C115	C116	C117	C118	C119	C120	C121	C122	C123	C124	C125	C126	C127	C128	C129	C130	C131	C132	C133	C134	C135	C136	C137	C138	C139	C140	C141	C142	C143	C144	C145	C146	C147	C148	C149	C150	C151	C152	C153	C154	C155	C156	C157	C158	C159	C160	C161	C162	C163	C164	C165	C166	C167	C168	C169	C170	C171	C172	C173	C174	C175	C176	C177	C178	C179	C180	C181	C182	C183	C184	C185	C186	C187	C188	C189	C190	C191	C192	C193	C194	C195	C196	C197	C198	C199	C200	C201	C202	C203	C204	C205	C206	C207	C208	C209	C210	C211	C212	C213	C214	C215	C216	C217	C218	C219	C220	C221	C222	C223	C224	C225	C226	C227	C228	C229	C230	C231	C232	C233	C234	C235	C236	C237	C238	C239	C240	C241	C242	C243	C244	C245	C246	C247	C248	C249	C250	C251	C252	C253	C254	C255	C256	C257	C258	C259	C260	C261	C262	C263	C264	C265	C266	C267	C268	C269	C270	C271	C272	C273	C274	C275	C276	C277	C278	C279	C280	C281	C282	C283	C284	C285	C286	C287	C288	C289	C290	C291	C292	C293	C294	C295	C296	C297	C298	C299	C300	C301	C302	C303	C304	C305	C306	C307	C308	C309	C310	C311	C312	C313	C314	C315	C316	C317	C318	C319	C320	C321	C322	C323	C324	C325	C326	C327	C328	C329	C330	C331	C332	C333	C334	C335	C336	C337	C338	C339	C340	C341	C342	C343	C344	C345	C346	C347	C348	C349	C350	C351	C352	C353	C354	C355	C356	C357	C358	C359	C360	C361	C362	C363	C364	C365	C366	C367	C368	C369	C370	C371	C372	C373	C374	C375	C376	C377	C378	C379	C380	C381	C382	C383	C384	C385	C386	C387	C388	C389	C390	C391	C392	C393	C394	C395	C396	C397	C398	C399	C400	C401	C402	C403	C404	C405	C406	C407	C408	C409	C410	C411	C412	C413	C414	C415	C416	C417	C418	C419	C420	C421	C422	C423	C424	C425	C426	C427	C428	C429	C430	C431	C432	C433	C434	C435	C436	C437	C438	C439	C440	C441	C442	C443	C444	C445	C446	C447	C448	C449	C450	C451	C452	C453	C454	C455	C456	C457	C458	C459	C460	C461	C462	C463	C464	C465	C466	C467	C468	C469	C470	C471	C472	C473	C474	C475	C476	C477	C478	C479	C480	C481	C482	C483	C484	C485	C486	C487	C488	C489	C490	C491	C492	C493	C494	C495	C496	C497	C498	C499	C500	C501	C502	C503	C504	C505	C506	C507	C508	C509	C510	C511	C512	C513	C514	C515	C516	C517	C518	C519	C520	C521	C522	C523	C524	C525	C526	C527	C528	C529	C530	C531	C532	C533	C534	C535	C536	C537	C538	C539	C540	C541	C542	C543	C544	C545	C546	C547	C548	C549	C550	C551	C552	C553	C554	C555	C556	C557	C558	C559	C560	C561	C562	C563	C564	C565	C566	C567	C568	C569	C570	C571	C572	C573	C574	C575	C576	C577	C578	C579	C580	C581	C582	C583	C584	C585	C586	C587	C588	C589	C590	C591	C592	C593	C594	C595	C596	C597	C598	C599	C600	C601	C602	C603	C604	C605	C606	C607	C608	C609	C610	C611	C612	C613	C614	C615	C616	C617	C618	C619	C620	C621	C622	C623	C624	C625	C626	C627	C628	C629	C630	C631	C632	C633	C634	C635	C636	C637	C638	C639	C640	C641	C642	C643	C644	C645	C646	C647	C648	C649	C650	C651	C652	C653	C654	C655	C656	C657	C658	C659	C660	C661	C662	C663	C664	C665	C666	C667	C668	C669	C670	C671	C672	C673	C674	C675	C676	C677	C678	C679	C680	C681	C682	C683	C684	C685	C686	C687	C688	C689	C690	C691	C692	C693	C694	C695	C696	C697	C698	C699	C700	C701	C702	C703	C704	C705	C706	C707	C708	C709	C710	C711	C712	C713	C714	C715	C716	C717	C718	C719	C720	C721	C722	C723	C724	C725	C726	C727	C728	C729	C730	C731	C732	C733	C734	C735	C736	C737	C738	C739	C740	C741	C742	C743	C744	C745	C746	C747	C748	C749	C750	C751	C752	C753	C754	C755	C756	C757	C758	C759	C760	C761	C762	C763	C764	C765	C766	C767	C768	C769	C770	C771	C772	C773	C774	C775	C776	C777	C778	C779	C780	C781	C782	C783	C784	C785	C786	C787	C788	C789	C790	C791	C792	C793	C794	C795	C796	C797	C798	C799	C800	C801	C802	C803	C804	C805	C806	C807	C808	C809	C810	C811	C812	C813	C814	C815	C816	C817	C818	C819	C820	C821	C822	C823	C824	C825	C826	C827	C828	C829	C830	C831	C832	C833	C834	C835	C836	C837	C838	C839	C840	C841	C842	C843	C844	C845	C846	C847	C848	C849	C850	C851	C852	C853	C854	C855	C856	C857	C858	C859	C860	C861	C862	C863	C864	C865	C866	C867	C868	C869	C870	C871	C872	C873	C874	C875	C876	C877	C878	C879	C880	C881	C882	C883	C884	C885	C886	C887	C888	C889	C890	C891	C892	C893	C894	C895	C896	C897	C898	C899	C900	C901	C902	C903	C904	C905	C906	C907	C908	C909	C910	C911	C912	C913	C914	C915	C916	C917	C918	C919	C920	C921	C922	C923	C924	C925	C926	C927	C928	C929	C930	C931	C932	C933	C934	C935	C936	C937	C938	C939	C940	C941	C942	C943	C944	C945	C946	C947	C948	C949	C950	C951	C952	C953	C954	C955	C956	C957	C958	C959	C960	C961	C962	C963	C964	C965	C966	C967	C968	C969	C970	C971	C972	C973	C974	C975	C976	C977	C978	C979	C980	C981	C982	C983	C984	C985	C986	C987	C988	C989	C990	C991	C992	C993	C994	C995	C996	C997	C998	C999	C1000	C1001	C1002	C1003	C1004	C1005	C1006	C1007	C1008	C1009	C1010	C1011	C1012	C1013	C1014	C1015	C1016	C1017	C1018	C1019	C1020	C1021	C1022	C1023	C1024	C1025	C1026	C1027	C1028	C1029	C1030	C1031	C1032	C1033	C1034	C1035	C1036	C1037	C1038	C1039	C1040	C1041	C1042
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1* - Materiał podstawowy/Base material, 2** - Złącze spawane/Weld, SWC - strefa wpływu ciepła/HAZ
TR - poprzeczne do osi rury, W - prostopadłe do osi spoiny ze spoiną w środku próbki, C - prostopadłe do osi spoiny z SWC w środku próbki.
TR- transverse to axis of the pipe, W - perpendicularity to the axis of the weld seam, specimen with middle-sized weld, C - perpendicular to the axis of the weld from HAZ in the center of the sample.

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytóp Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	810612	0,06	1,65	0,309	0,010	0,003	0,03	0,240	0,03	0,080	0,0420	0,039	0,0568	0,0065	0,0210	0,17
2	810612	0,057	1,66	0,308	0,014	0,005	0,029	0,238	0,034	0,083	0,038	0,043	0,058	0,007	0,021	0,17
2	810612	0,059	1,65	0,305	0,014	0,005	0,029	0,240	0,033	0,081	0,038	0,042	0,058	0,007	0,021	0,17


FERRUM S.A.
ŚWIADECTWO ODBIORU 3.1 A02

zgodnie z PN-EN 10204

Inspection certificate 3.1

acc. to PN-EN 10204

40-246 Katowice
ul. Porcelanova 11
POLAND
KRS 000063239
Tel.: +48 (32) 730 47 99
Fax: +48 (32) 730 46 77
e-mail: ferrum@ferrum.com.pl
http://www.ferrum.com.pl

 Nr dokumentu/
Document No **S/2019**

 Data/
Date **2019-01-04**

 Strona/
Page **2 / 2**

 Nr potwierdzenia/
Contract No

 Zamówienie Nr/
Order No

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytóp Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PM}
1	830080	0,06	1,63	0,302	0,009	0,002	0,03	0,239	0,05	0,079	0,0470	0,037	0,0607	0,0065	0,0240	0,17
2	830080	0,059	1,61	0,289	0,013	0,004	0,032	0,278	0,058	0,077	0,043	0,041	0,063	0,008	0,026	0,17
2	830080	0,059	1,61	0,289	0,012	0,004	0,032	0,277	0,057	0,077	0,043	0,042	0,063	0,008	0,026	0,17

Wg Świadectw Huty/Acc. to works certificates:

1 - Analiza wytopowa/Heat Analysis, 2 - Analiza kontrolna/Product analysis

Sprawdzenie wizualne/Kontrola wymiarów/ Visual and dimensional inspection: Próba szczelności/Leak - proof test:	100 % rur - wynik pozytywny. 100 % pipes - result positive.	D01
Badania nieniszczące/NDT:	Próba wodna - $p_1 = 11,1$ MPa, $p_R = 20$ bar (napężenie obwodowe odpowiada 90% $R_{m,s}$) - czas wytrzymania 10 sekund - wynik pozytywny 100% rur Hydrostatic Test - $p_1 = 11,1$ MPa, $p_R = 20$ bar (testing pressure equals to 90% $R_{m,s}$) - hold for 10 sec. Result - positive 100% of pipes.	D51
Badania nieniszczące/NDT:	100% spoin spiralnych - badania ultradźwiękowe wg PN-EN ISO 10893-11 klasa akceptacji U2/U2H - wynik pozytywny. Weld seam ultrasonically tested acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result. Rozwarstwienia na krawędziach taśmy: badania ultradźwiękowe wg PN-EN ISO 10893-6 klasa dopuszczalności U2- wynik pozytywny. Laminar imperfections at the stripes edges - seam area acc. to PN-EN ISO 10893-6 acceptance level U2- positive result. Rozwarstwienia na końcach rur - badania ultradźwiękowe wg PN-EN ISO 10893-6 klasa dopuszczalności U2- wynik pozytywny. All pipes ends was tested for laminar imperfections acc. to PN-EN ISO 10893-6 acceptance level U2- positive result. Rozwarstwienia na korpusie rury: badania ultradźwiękowe wg PN-EN ISO 10893-6 klasa dopuszczalności U2- wynik pozytywny. Stratification of the body of the pipe - seam area acc. to PN-EN ISO 10893-6 acceptance level U2- positive result. Badania radiograficzne spoin niebadanych i miejsc naprawionych wg PN-EN ISO 10893-6 klasa jakości obrazu B - wynik pozytywny. Radiographic testing untested weld and repaired areas - radiographs technique acc. to PN-EN 10893-6 class B - positive result.	D02
Inne badania/Other tests:	Badania makroskopowe - geometria zewnętrzna i wewnętrzna wg PN-EN ISO 5833 - wynik pozytywny. Metallographic testing - external and internal geometry acc. to PN-EN ISO 5833 - positive result. Magnetyzm szczątkowy - kontrola zgodności z deklaracją 30 Gauss Residual magnetic field - compliance with declaration ≤ 30 Gauss Badanie twardości powierzchniowej metodą Vickersa (HV10) max. 300 HV10 - wynik pozytywny. Hardness testing - pipe body surface max. 300 HV10 - positive result.	D03

NUMERY RUR/PIPES NO

Nr wytopu skrótowego/ Internal No	Nr próby/ Test No	Nr rury/ Pipe No
19440	19440/10	19440
19445	19445/15	19445

 NINIEJSZYM POTWIERDZAMY, ŻE WYŻEJ WYMIENIONY MATERIAŁ ZOSTAŁ ZBADANY I SPEŁNIA WARUNKI POTWIERDZENIA ZAMÓWIENIA
WE CERTIFY THAT THE ABOVE DESCRIBED PRODUCTS HAVE BEEN TESTED AND CONFORM WITH THE TERMS OF THE ORDER CONFIRMATION

Z01

Decyzja Nr M-09-21/6-15 z dnia 28.10.2015 r. Urząd Dozoru Technicznego w Warszawie Oddział w Katowicach uprawnili przedsiębiorstwo „Ferrum” S.A. do wytwarzania stalowych rur spawanych i zgrzewanych przeznaczonych do budowy, naprawy i modernizacji urządzeń technicznych podlegających dozorowi technicznemu.
Against Decision No M-09-21/6-15 dated 28.10.2015 r. the Main Inspection Office in Warsaw, the Branch Office in Katowice, has authorised the company „Ferrum” S.A. to manufacture welded pipes destined for construction and repair of engineering constructions subject of technical inspection.



IZOSTAL S.A.
VICE PRESIDENT
COMPLIANCE DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

- 13
- FERRUM S.A. ul. Porcelanova 11 40 - 246 Katowice POLAND
- FERRUM_SAWH_PN - EN ISO 3183
- PN-EN ISO 3183; 2013 + A1:2018
- Krajowa deklaracja właściwości użytkowych / National declaration of performance Nr/No. S/001/2019
- Deklarowane właściwości użytkowe/ Declared performance:

Gatunek /Grade	$R_{m,s}$ (MPa)	R_m (MPa)	$A_{g,min.}$ (%)	CE _{PM} max. (%)	KV korpusu rury/ pipe body [0°C] min. (J)	KV spoiny i SWC / weld and HAZ [0°C] min. (J)
L485ME	485 - 605	570 - 760	18	0,25	55	40

7. „ZETOM” Katowice - AC 005
8. <http://www.ferrum.com.pl>

000176

Z03

PRESIDENT OF THE BOARD
CEO

 Kontrola Jakości /
Quality control

 Kontrola Jakości /
Quality control

 Przedstawiciel zamawiającego/
Purchaser's representative

Krzysztof Kasprzycki

VICE-PRESIDENT OF THE BOARD

Świadectwo odbioru ważne jest tylko w oryginale/Inspection Certificate is valid only in original



FERRUM S.A.

ŚWIADECTWO ODBIORU 3.1 A02

zgodnie z PN-EN 10204

Inspection certificate 3.1

acc. to PN-EN 10204

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Nr dokumentu/
Document No S/2019 A03Data/
Date 2019-01-04 A02Strona/
Page 1 / 2Nr potwierdzenia/
Contract NoZamówienie Nr/
Order No A07

FERRUM S.A. POSIADA CERTYFIKATY SYSTEMÓW ZARZĄDZANIA WG ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 ORAZ ISO 14001.
FERRUM S.A. POSSES THE CERTIFICATES FOR SYSTEMS MANAGEMENT ACC. TO ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 AND ISO 14001.

Zamawiający/Customer

Wyrób/Product: Helically welded steel pipes SAW H
Without anticorrosive protection.Wykonano wg norm i wymagań/
Manufactured in compliance with
standards and other requirements: PN-EN ISO 3183

Oznaczenie stali/Steel designation: L415ME PSL 2

Stan dostawy/
Condition of delivery: MNumer artykułu klienta/
Purchaser article number:Wymagania dodatkowe/
Supplementary requirements: Ends bevelled acc. to PN-EN ISO 3183 div.
9.12.5.2Awizo Nr/Advice No
(Wagon Nr/Car No):Materiał oznaczono/
Material was marked: IF EN ISO 3183 711 x 8,8 L415ME PSL2 G E SAWH Internal No/ pipe No, Ciężar/Weight: 26,00 kg

Poz/ Item	Wymiary/ Dimensions [mm]	Wytóp Nr/ Heat No	Wytóp seryjny Nr/ Serial No	Sztyk/ Pieces	Długość/ Length [m]	Masa/ Weight [kg]
1	711 x 8,8	810612	19440	1		
			19445	1		
			WSPÓŁSUMA	2	26,00	

BADANIA MECHANICZNE/MECHANICAL TESTS

Nr próby/ Test No	Kierunek/ Direction of test piece	Wymiary/ Dimensions a x b [mm]	Ciepłota próby/ Test temperature T _{test} °C	Prężenie próby/ Test yield strength R _{eL} MPa	Wytrzymałość próby/ Test tensile strength R _m MPa	R _{0,5} /R _m	Wydłużenie/ Elongation A ₅ [%]	Udarność (Charpy-V)/Notched-bar impact test (Charpy-V) [J]								Próba gięcia/ Bending test	DWT Temperatura badania: -20°C
								Wymiary/Dimensions: 10x8,0 [mm] Współczynnik bezpieczeństwa/Factor of safety: 0,72									
								1* - Badanie korpusu w temperaturze/ Body test at temperature : -29°C 2** - Badanie spoiny i SWC w temperaturze/ Weld and HAZ test at temperature: -29°C									
								1*				2**					
				1*	2**	Wartość jednostkowa (J) / Single value (J)				Σ/n	C43	Wartość jednostkowa (J) / Single value (J)				Σ/n	C43
				1*	2**					Σ/n	C43					Σ/n	C43
19440/101	TR	8,8x25,0	510	627	689	0,81	30,0	267	261	275	268	107	101	109	106	positive	100%
19440/101	W	8,8x25,0										181	171	189	180		ductile fracture
19445/151	TR	8,8x25,0	543	655		0,83	30,0	283	275	293	284	136	115	123	125	positive	100%
19445/151	W	8,8x25,0			719							139	157	163	153		ductile fracture
19445/151	C	SWC															

1* - Materiał podstawowy/Base material, 2** - Złącze spawane/Weld, SWC - strefa wpływu ciepła/HAZ

TR - poprzeczne do osi rury, W - prostopadłe do osi spoiny ze spoiną w środku próbki, C - prostopadłe do osi spoiny z SWC w środku próbki.

TR - transverse to axis of the pipe, W - perpendicularity to the axis of the weld seam, specimen with middle-sized weld, C - perpendicular to the axis of the weld from HAZ in the center of the sample.

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytóp Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	PRESIDENT OF THE BOARD						Ti	CE _{PCM}
1	810612	0,08	1,65	0,322	0,012	0,003	0,03	0,01	0,02	0,005	0,0450	0,044	0,0530	0,0066	0,0210	0,18		
2	810612	0,07	1,68	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17		
2	810612	0,07	1,69	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17		



FERRUM S.A.

ŚWIADECTWO ODBIORU 3.1 A02
zgodnie z PN-EN 10204
Inspection certificate 3.1
acc. to PN-EN 10204

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Nr dokumentu/
Document No **S/2019** A03

Data/
Date **2019-01-04** A02

Strona/
Page **2 / 2**

Nr potwierdzenia/
Contract No

Zamówienie Nr/
Order No

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytóp Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	830080	0,09	1,64	0,345	0,013	0,003	0,03	0,01	0,01	0,005	0,0450	0,038	0,0526	0,0054	0,0230	0,19
2	830080	0,09	1,67	0,340	0,016	0,004	0,03	0,02	0,01	0,003	0,041	0,038	0,053	0,006	0,022	0,19
2	830080	0,09	1,66	0,340	0,016	0,004	0,04	0,02	0,01	0,006	0,043	0,044	0,053	0,006	0,024	0,19

Wg Świadectw Huty/Acc. to works certificates:
1 - Analiza wyciepowa/Heat Analysis, 2 - Analiza kontrolna/Product analysis

Sprawdzenie wizualne/Kontrola wymiarów/ Visual and dimensional inspection: Próba szczelności/Leak - proof test:	100 % rur - wynik pozytywny. 100 % pipes - result positive.	D01
	Próba wodna - $p_1 = 6,8$ MPa, $p_k = 20$ bar (napężenie obwodowe odpowiada 90% $R_{m0,5}$) - czas wytrzymania 10 sekund - wynik pozytywny 100% rur Hydrostatic Test - $p_1 = 6,8$ MPa, $p_k = 20$ bar (testing pressure equals to 90% $R_{m0,5}$) - hold for 10 sec. Result - positive 100% of pipes.	
Badania nieniszczące/NDT:	100% spoin spiralnych - badania ultradźwiękowe wg PN-EN ISO 10893-11 klasa akceptacji U2/U2H - wynik pozytywny. Weld seam ultrasonically tested acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result.	D02
	Rozwarstwienie na krawędziach taśmy: badania ultradźwiękowe wg PN-EN ISO 10893-8 dopuszczalności U2 - wynik pozytywny. Laminar imperfections at the stripes edges - seam area acc. to PN-EN ISO 10893-8 acceptance level U2 - positive result.	
Inne badania/Other tests:	Rozwarstwienia na końcach rur - badania ultradźwiękowe wg PN-EN ISO 10893-11 klasa akceptacji U2/U2H - wynik pozytywny. All pipes ends was tested for laminar imperfections acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result.	D03
	Rozwarstwienia na korpusie rury: badania ultradźwiękowe wg PN-EN ISO 10893-11 klasa akceptacji U2 - wynik pozytywny. Stratification of the body of the pipe - seam area acc. to PN-EN ISO 10893-11 acceptance level U2 - positive result.	
	Badania radiograficzne spoin niebadanych i spoin spawanych wg PN-EN ISO 10893-6 klasa jakości obrazu B - wynik pozytywny. Radiographic testing untested weld and tested welds acc. to PN-EN ISO 10893-6 class B - positive result.	
	Badania makroskopowe - materiały spawane zgodnie z PN-EN ISO 10893-11 klasa akceptacji U2/U2H - wynik pozytywny. Metallographic testing weld seam metallography acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result.	
	Magnetyzm szczątkowy - badanie zgodne z PN-EN ISO 10893-11 klasa akceptacji U2/U2H - wynik pozytywny. Residual magnetic field measurement acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result.	
	Badanie twardości materiału wg PN-EN ISO 10893-11 klasa akceptacji U2/U2H - wynik pozytywny. Hardness test of pipe body material acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result.	

NUMERY RUR/PIPES NO

Nr wytupu skrótowego/ Internal No	Nr próby/ Test No	Pipa
19440	19440/10	155
19445	19445/15	155

NINIEJSZYM POTWIERDZAMY, ŻE WYŻEJ WYMIENIONY MATERIAŁ ZOSTAŁ ZBADANY I SPEŁNIA WARUNKI POTWIERDZENIA ZAMÓWIENIA
WE CERTIFY THAT THE ABOVE DESCRIBED PRODUCTS HAVE BEEN TESTED AND CONFORM WITH THE TERMS OF THE ORDER CONFIRMATION

Z01

Decyzją Nr M-09-21/6-15 z dnia 28.10.2015 r. Urząd Dozoru Technicznego w Warszawie Oddział w Katowicach uprawnili przedsiębiorstwo „Ferrum” S.A. do wytwarzania stalowych rur spawanych i zgrzewanych przeznaczonych do budowy, naprawy i modernizacji urządzeń technicznych podlegających dozorowi technicznemu.
Against Decision No M-09-21/6-15 dated 28.10.2015 r. the Main Inspection Office in Warsaw, the Branch Office in Katowice, has authorised the company „Ferrum” S.A. to manufacture welded pipes destined for construction and repair of engineering constructions subject of technical inspection.



IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Masurek

- 13
- FERRUM S.A. ul. Porcelanowa 11. 40 - 246 Katowice POLAND
- FERRUM_SAWH_PN - EN ISO 3183
- PN-EN ISO 3183; 2013+A1:2018
- Krajowa deklaracja właściwości użytkowych / National declaration of performance Nr/No. S/001/2019
- Deklarowane właściwości użytkowe/ Declared performance:

Gatunek /Grade	$R_{m0,5}$ (MPa)	R_m (MPa)	A_{min} (%)	CE _{PCM} max. (%)	KV korpusu rury/ pipe body [0°C] min. (J)	KV spoiny i SWC / weld and HAZ [0°C] min. (J)
L415ME	415 - 565	520 - 760	18	0,25	40	40

7. „ZETOM” Katowice - AC 005
8. <http://www.ferrum.com.pl>

000178

Z03

Kontrola Jakości /
Quality control

Kontrola Jakości /
Quality control

PRESIDENT OF THE BOARD
CEO

Przedstawiciel zamawiającego/
Purchaser's representative

VICE-PRESIDENT OF THE BOARD

Świadectwo odbioru ważne jest tylko w oryginale/Inspection Certificate is valid only in original

Krzysztof Kasprzycki

Łukasz Warczyk



FERRUM S.A.

ŚWIADECTWO ODBIORU 3.1 A02

zgodnie z PN-EN 10204

Inspection certificate 3.1

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Nr dokumentu/ Document No	S/2019	Data/ Date	2019-01-04	Strona/ Page	1 / 2
Nr potwierdzenia/ Contract No		Zamówienie Nr/ Order No			

FERRUM S.A. POSIADA CERTYFIKATY SYSTEMÓW ZARZĄDZANIA WG ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 ORAZ ISO 14001.
FERRUM S.A. POSSES THE CERTIFICATES FOR SYSTEMS MANAGEMENT ACC. TO ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 AND ISO 14001.

Zamawiający/Customer	Wyrób/Product:	Helically welded steel pipes SAW H Without anticorrosive protection.
	Wykonano wg norm i wymagań/ Manufactured in compliance with standards and other requirements:	PN-EN ISO 3183
	Oznaczenie stali/Steel designation:	L415ME PSL 2
	Stan dostawy/ Condition of delivery:	M
	Numer artykułu klienta/ Purchaser article number:	
	Wymagania dodatkowe/ Supplementary requirements:	Ends' bevelled acc. to PN-EN ISO 3183 div. 9.12.5.2
	Awizo Nr/Advice No (Wagon Nr/Car No):	

Material oznaczono/
Material was marked: F EN ISO 3183 711 x 12,5 L415ME PSL2 G E SAWH internal No/ pipe No, Quality Control Stamp KJ

Poz/ Item	Wymiary/ Dimensions [mm]	Wytap Nr/ Heat No	Waga Weight [kg]	Długość/ Length [m]	Masa/ Weight [kg]
1	711 x 12,5	810612	19,40	1	
			19,40	1	
			2	26,00	

BADANIA MECHANICZNE/MECHANICAL TESTS

Nr próby/ Test No	Kierunek/ Direction of test place	Wymiary/ Dimensions a x b [mm]	Wytrzymałość/ Tensile strength R _m MPa	Wydłużenie/ Elongation A ₅ [%]	Udarowość (Charpy-V)/Notched-bar impact test (Charpy-V) [J]								Próba gładka/ Bending test	DWT Temperatura badania: -20°C			
					Wymiary/Dimensions: 10x8,0 [mm] Współczynnik bezpieczeństwa/Factor of safety: 0,72 1* - Badanie korpusu w temperaturze/ Body test at temperature: -29°C 2** - Badanie spoiny i SWC w temperaturze/ Weld and HAZ test at temperature: -29°C												
					1*				2**								
					Wartość jednostkowa (J) / Single value (J)				Wartość jednostkowa (J) / Single value (J)								
			1*	2**													
			415+ 565	520+ 760	min. 520	max 0,85	min. 18	40	40	40	40	40	40	40	40	4180°	Σ/2
19440/101	TR	12,5x25,0	510	627		0,81	30,0	267	261	275	268					5t	≥85%
19440/101	W	12,5x25,0			689							107	101	109	106	positive	ductile fracture
19440/101	C	SWC										181	171	189	180		
19445/151	TR	12,5x25,0	543	655		0,83	30,0	283	275	293	284						100%
19445/151	W	12,5x25,0			719							136	115	123	125	positive	ductile fracture
19445/151	C	SWC										139	157	163	153		

1* - Materiał podstawowy/Base material, 2** - Złącze spawane/Weld, SWC - strefa wpływu ciepła/HAZ

TR - poprzeczne do osi rury, W - prostopadłe do osi spoiny ze spoiną w środku próbki, C - prostopadłe do osi spoiny z SWC w środku próbki

TR - transverse to axis of the pipe, W - perpendicularity to the axis of the weld seam, specimen with middle-sized weld, C - perpendicular to the axis of the weld from HAZ in the center of the sample.

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytap Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	810612	0,08	1,65	0,322	0,012	0,003	0,03	0,01	0,02	0,005	0,040	0,044	0,053	0,0066	0,0210	0,18
2	810612	0,07	1,68	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17
2	810612	0,07	1,69	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17

Krzysztof Kasprzycki

Świadectwo odbioru ważne jest tylko w oryginale/Inspection Certificate is valid only in original

Lukasz Warczyk



FERRUM S.A.

ŚWIADECTWO ODBIORU 3.1 A02
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 Nr dokumentu/
 Document No **S/2019** A03

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 Date **2019-01-04** A02

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 Nr potwierdzenia/
 Contract No

 Zamówienie Nr/
 Order No

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytóp Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	830080	0,09	1,64	0,345	0,013	0,003	0,03	0,01	0,01	0,005	0,0450	0,038	0,0526	0,0054	0,0230	0,19
2	830080	0,09	1,67	0,340	0,016	0,004	0,03	0,02	0,01	0,003	0,041	0,038	0,053	0,006	0,022	0,19
2	830080	0,09	1,66	0,340	0,016	0,004	0,04	0,02	0,01	0,006	0,043	0,044	0,053	0,006	0,024	0,19

 Wg świadectw Huty/Acc. to works certificates:
 1 - Analiza wtopowa/Heat Analysis, 2 - Analiza kontrolna/Product analysis

Sprawdzenie wizualne/Kontrola wymiarów/ Visual and dimensional inspection:	100 % rur - wynik pozytywny. 100 % pipes - result positive.	D01
Próba szczelności/Leak - proof test:	Próba wodna - $p_1 = 10,8 \text{ MPa}$, $p_R = 20 \text{ bar}$ (napężenie obwodowe odpowiada 90% $R_{0,5}$) - czas wytrzymania 10 sekund - wynik pozytywny 100% rur Hydrostatic Test - $p_1 = 10,8 \text{ MPa}$, $p_R = 20 \text{ bar}$ (testing pressure equals to 90% $R_{0,5}$) - hold for 10 sec. Result - positive 100% of pipes.	D01
Badania nieniszczące/NDT:	100% spoin spiralnych - badania ultradźwiękowe wg PN-EN ISO 10893-11 - akceptacja U2/U2H - wynik pozytywny. Weld seam ultrasonically tested acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result. Rozwarstwienie na krawędziach taśmy: badania ultradźwiękowe wg PN-EN ISO 10893-11 - dopuszczalność U2 - wynik pozytywny. Laminar imperfections at the stripes edges - seam area acc. to PN-EN ISO 10893-11 acceptance level U2 - positive result. Rozwarstwienia na końcach rur - badania ultradźwiękowe wg PN-EN ISO 10893-11 - dopuszczalność U2 - wynik pozytywny. All pipes ends was tested for laminar imperfections acc. to PN-EN ISO 10893-11 - acceptance level U2 - positive result. Rozwarstwienia na korpusie rury: badania ultradźwiękowe wg PN-EN ISO 10893-11 - dopuszczalność U2 - wynik pozytywny. Stratification of the body of the pipe - seam area acc. to PN-EN ISO 10893-11 acceptance level U2 - positive result. Badania radiograficzne spoin niebadanych i małych spoin: badania radiograficzne wg PN-EN ISO 10893-6 - klasa jakości obrazu B - wynik pozytywny. Radiographic testing untested weld and small welds: radiographic testing acc. to PN-EN ISO 10893-6 class B - positive result.	D02
Inne badania/Other tests:	Badania makroskopowe - kontrola powierzchni spoin wg PN-EN ISO 10893-11 - wynik pozytywny. Metallographic testing - surface inspection of welds acc. to PN-EN ISO 10893-11 - positive result. Magnetyzm szczątkowy - kontrola powierzchni spoin wg PN-EN ISO 10893-11 - wynik pozytywny. Residual magnetic field - surface inspection of welds acc. to PN-EN ISO 10893-11 - result ≤ 30 Gauss Badanie twardości materiału: kontrola powierzchni spoin wg PN-EN ISO 10893-11 - max. 270 HV10 - wynik pozytywny. Hardness testing: surface inspection of welds acc. to PN-EN ISO 10893-11 - max. 270 HV10 - positive result.	D03

NUMERY RUR/PIPES NO

Nr wypołu skrótowego/ Internal No	Nr próby/ Test No	Pipe No
19440	19440/10	155
19445	19445/15	155

 NINIEJSZYM POTWIERDZAMY, ŻE WYŻEJ WYMIENIONY MATERIAŁ ZOSTAŁ ZBADANY I SPEŁNIA WARUNKI POTWIERDZENIA ZAMÓWIENIA
 WE CERTIFY THAT THE ABOVE DESCRIBED PRODUCTS HAVE BEEN TESTED AND CONFORM WITH THE TERMS OF THE ORDER CONFIRMATION

 Decyzją Nr M-09-21/6-15 z dnia 28.10.2015 r. Urząd Dozoru Technicznego w Warszawie Oddział w Katowicach uprawnili przedsiębiorstwo „Ferrum” S.A. do wytwarzania stalowych rur spawanych i zgrzewanych przeznaczonych do budowy, naprawy i modernizacji urządzeń technicznych podlegających dozorowi technicznemu.
 Against Decision No M-09-21/6-15 dated 28.10.2015 r. the Main Inspection Office in Warsaw, the Branch Office in Katowice, has authorised the company „Ferrum” S.A. to manufacture welded pipes destined for construction and repair of engineering constructions subject of technical inspection.


- 13
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- FERRUM_SAWH_PN - EN ISO 3183
- PN-EN ISO 3183; 2013+A1:2018
- Krajowa deklaracja właściwości użytkowych / National declaration of performance Nr/No. S/001/2019
- Deklarowane właściwości użytkowe/ Declared performance:

Gatunek /Grade	$R_{0,5}$ (MPa)	R_m (MPa)	$A_{min.}$ (%)	CE _{PCM} max. (%)	KV korpusu rury/ pipe body [0°C] min. (J)	KV spoiny i SWC / weld and HAZ [0°C] min. (J)
L415ME	415 - 565	520 - 760	18	0,25	40	40

7. „ZETOM” Katowice - AC 005
8. <http://www.ferrum.com.pl>

mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEOmgr Marek Mazurek
PRESIDENT OF THE BOARD
CEOKontrola Jakości /
Quality controlKontrola Jakości /
Quality controlPrzedstawiciel zamawiającego/
Purchaser's representative

Krzysztof Kasprzycki

000180

Lukasz Warczyk



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Nr dokumentu/ Document No	Data/ Date	Strona/ Page
S/2019	2019-01-04	1 / 2
Nr potwierdzenia/ Contract No	Zamówienie Nr/ Order No	

FERRUM S.A. POSIADA CERTYFIKATY SYSTEMÓW ZARZĄDZANIA WG ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 ORAZ ISO 14001.
FERRUM S.A. POSSES THE CERTIFICATES FOR SYSTEMS MANAGEMENT ACC. TO ISO 9001, API SPEC Q1, ISO 3834-2, ISO 10002, ISO 17025, OHSAS 18001, PN-N 18001 AND ISO 14001.

Zamawiający/Customer	Wyrob/Product:	Helically welded steel pipes SAW H Without anticorrosive protection.
	Wykonano wg norm i wymagań/ Manufactured in compliance with standards and other requirements:	PN-EN ISO 3183
	Oznaczenie stali/Steel designation:	L415ME PSL 2
	Stan dostawy/ Condition of delivery:	M
	Numer artykułu klienta/ Purchaser article number:	
	Wymagania dodatkowe/ Supplementary requirements:	Ends' bevelled acc. to PN-EN ISO 3183 div. 9.12.5.2
	Awizo Nr/Advice No (Wagon Nr/Car No):	

Material oznaczono/ Material was marked:	HF EN ISO 3183 711 x 8,0 L415ME PSL2 G E SAWH Internal No/ pipe No, Quality Control stamp KJ	A04/B06
---	--	---------

Poz/ Item	Wymiary/ Dimensions [mm]	Wytop Nr/ Heat No	Waga netto/ Waga brutto Net weight/ Gross weight [kg]	Liczba Piec Pieces	Długość/ Length [m]	Masa/ Weight [kg]
1	711 x 8,0	810642	19,40 19,45	1		
				2	26,00	

BADANIA MECHANICZNE/MECHANICAL TESTS

[illegible]

1* - Materiał podstawowy/Base material, 2** - Złącze spawane/Weld, SWC - strefa wpływu ciepła/HAZ

TR - poprzeczne do osi rury, W - prostopadłe do osi spoiny ze spoiną w środku próbki, C - prostopadłe do osi spoiny z SWC w środku próbki.

TR- transverse to axis of the pipe, W - perpendicularity to the axis of the weld seam, specimen with middle-sized weld, C - perpendicular to the axis of the weld from HAZ in the center of the sample.

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

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mgr Marek Mazurek

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Poz/ Item	Wytop Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	810612	0,08	1,65	0,322	0,012	0,003	0,03	0,01	0,02	0,005	0,0450	0,044	0,0530	0,0066	0,0210	0,18
2	810612	0,07	1,68	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17
2	810612	0,07	1,69	0,292	0,015	0,005	0,03	0,02	0,01	0,004	0,040	0,046	0,051	0,007	0,021	0,17

Krzysztof Kasprzycki

Lukasz Warczyk



FERRUM S.A.

ŚWIADECTWO ODBIORU 3.1 A02

zgodnie z PN-EN 10204

Inspection certificate 3.1

acc. to PN-EN 10204

40-246 Katowice
ul. Porcelanowa 11
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e-mail: ferrum@ferrum.com.pl
http://www.ferrum.com.pl

Nr dokumentu/
Document No **S/2019**

Data/
Date **2019-01-04**

Strona/
Page **2 / 2**

Nr potwierdzenia/
Contract No

Zamówienie Nr/
Order No

SKŁAD CHEMICZNY/CHEMICAL COMPOSITION [%]

Poz/ Item	Wytóp Nr/ Heat No	C	Mn	Si	P	S	Cr	Ni	Cu	Mo	V	Al	Nb	N	Ti	CE _{PCM}
1	830080	0,09	1,64	0,345	0,013	0,003	0,03	0,01	0,01	0,005	0,0450	0,038	0,0526	0,0054	0,0230	0,19
2	830080	0,09	1,67	0,340	0,016	0,004	0,03	0,02	0,01	0,003	0,041	0,038	0,053	0,006	0,022	0,19
2	830080	0,09	1,66	0,340	0,016	0,004	0,04	0,02	0,01	0,006	0,043	0,044	0,053	0,006	0,024	0,19

Wg Świadczeń Huty/Acc. to works certificates:
1 - Analiza wytopowa/Heat Analysis, 2 - Analiza kontrolna/Product analysis

Sprawdzenie wizualne/Kontrola wymiarów/ Visual and dimensional inspection: Próba szczelności/Leak - proof test:	100 % rur - wynik pozytywny. 100 % pipes - result positive.	D01
	Próba wodna - $p_1 = 6,0$ MPa, $p_R = 20$ bar (napężenie obwodowe odpowiada 90% $R_{0,5}$) - czas wytrzymania 10 sekund - wynik pozytywny 100% rur Hydrostatic Test - $p_1 = 6,0$ MPa, $p_R = 20$ bar (testing pressure equals to 90% $R_{0,5}$) - hold for 10 sec. Result - positive 100% of pipes.	D01
Badania nieniszczące/NDT:	100% spoin spiralnych - badania ultradźwiękowe wg PN-EN ISO 10893-11 - akceptacja U2/U2H - wynik pozytywny. Weld seam ultrasonically tested acc. to PN-EN ISO 10893-11 acceptance level U2/U2H - positive result. Rozwarstwienie na krawędziach taśmy: badania ultradźwiękowe wg PN-EN ISO 10893-8 - dopuszczalność U2 - wynik pozytywny. Laminar imperfections at the stripes edges - seam area acc. to PN-EN ISO 10893-8 acceptance level U2 - positive result. Rozwarstwienia na końcach rur - badania ultradźwiękowe wg PN-EN ISO 10893-8 - dopuszczalność U2 - wynik pozytywny. All pipes ends was tested for laminar imperfections acc. to PN-EN ISO 10893-8 acceptance level U2 - positive result. Rozwarstwienia na korpusie rury: badania ultradźwiękowe wg PN-EN ISO 10893-6 - dopuszczalność U2 - wynik pozytywny. Stratification of the body of the pipe - seam area acc. to PN-EN ISO 10893-6 acceptance level U2 - positive result.	D02
	Badania radiograficzne spoin nlebadanych i spoin na zawłazkach wg PN-EN ISO 10893-6 - dopuszczalność B - wynik pozytywny. Radiographic testing untested weld and seam area on radiograph testing acc. to PN-EN ISO 10893-6 class B - positive result.	D02
Inne badania/Other tests:	Badania makroskopowe - kontrola powierzchni zgodnie z PN-EN ISO 10893-1 - wynik pozytywny. Metallographic testing - seam area and surface acc. to PN-EN ISO 10893-1 - positive result. Magnetyzm szczątkowy - kontrola zgodnie z PN-EN ISO 10893-1 - wynik pozytywny. Residual magnetism - seam area and surface acc. to PN-EN ISO 10893-1 - positive result. Badanie trwałości materiału - zgodnie z PN-EN ISO 10893-1 - wynik pozytywny. Hardness testing - pipe body and seam area acc. to PN-EN ISO 10893-1 - positive result.	D03

NUMERY RUR/PIPES NO

Nr wytopu skrótowego/ Internal No	Nr próby/ Test No	Pipa/ Pipe
19440	19440/10	155
19445	19445/15	155

NINIEJSZYM POTWIERDZAMY, ŻE WYŻEJ WYMNIENIONY MATERIAŁ ZOSTAŁ ZBADANY I SPEŁNIA WARUNKI POTWIERDZENIA ZAMÓWIENIA
WE CERTIFY THAT THE ABOVE DESCRIBED PRODUCTS HAVE BEEN TESTED AND CONFORM WITH THE TERMS OF THE ORDER CONFIRMATION

Z01

Decyzją Nr M-09-21/6-15 z dnia 28.10.2015 r. Urząd Dozoru Technicznego w Warszawie Oddział w Katowicach uprawnili przedsiębiorstwo „Ferrum” S.A. do wytwarzania stalowych rur spawanych i zgrzewanych przeznaczonych do budowy, naprawy i modernizacji urządzeń technicznych podlegających dozorowi technicznemu.
Against Decision No M-09-21/6-15 dated 28.10.2015 r. the Main Inspection Office in Warsaw, the Branch Office in Katowice, has authorised the company „Ferrum” S.A. to manufacture welded pipes destined for construction and repair of engineering constructions subject of technical inspection.



IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR
mgr Michał Pietrek

IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

1. 13
2. FERRUM S.A. ul. Porcelanowa 11 40 - 246 Katowice POLAND
3. FERRUM_SAWH_PN - EN ISO 3183
4. PN-EN ISO 3183; 2013+A1:2018
5. Krajowa deklaracja właściwości użytkowych / National declaration of performance Nr/No. S/001/2019
6. Deklarowane właściwości użytkowe/ Declared performance:

Gatunek /Grade	$R_{0,5}$ (MPa)	R_m (MPa)	$A_{min.}$ (%)	CE _{PCM} max. (%)	KV korpusu rury/ pipe body [0°C] min. (J)	KV spoiny i SWC / weld and HAZ [0°C] min. (J)
L415ME	415 - 565	520 - 760	18	0,25	40	40

7. „ZETOM” Katowice - AC 005
8. <http://www.ferrum.com.pl>

Kontrola Jakości /
Quality control

Kontrola Jakości /
Quality control

PREZIDENT OF THE BOARD
CEO

Przedstawiciel zamawiającego/
Purchaser's representative

VICE-PRESIDENT OF THE BOARD

Świadcstwo odbioru ważne jest tylko w oryginale/Inspection Certificate is valid only in original

Krzysztof Kasprzycki

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Z03

Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)


ArcelorMittal

Rev. 0

EN ISO 3183-M:2012, Grade L415ME PSL2, 711.0x12.5 mm,
2015-08-00-KRDD-D.PP-TS.1-1 rev.A

Document number: 153-3/19 rev. 0

date: 9.1.2019

Compiled by J. Pospišil

Technika

Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE
1	TYPE	SAWH, produce acc. to EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure	DTP 15.3101-09 IS 15-G13/13
2	INPUT MATERIAL	release input material: Coil, welding wire, welding flux	every delivery	acc. to manufacturer's procedure	PP TT-5.06
3	MANUFACTURING, FORMING AND WELDING	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure	DTP 15.3101-09 IS 15-G13/13
	CHEMICAL COMPOSITION	EN 3183-M:2012	1 per every heat	EN 3183-M:2012, Table M.1, grade L415ME/X60ME	IS 15-01/10
	VISUAL INSPECTION	2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 10.2.7	DTP 15.3101-09 IS 15-G13/13
	- surface imperfections	2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.10	DTP 15.3102-09 IS 15-G13/13
	DIMENSIONS INSPECTION	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.11	DTP 15.3102-09 IS 15-G13/13
	- outside diameter	2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and 2015-08-00-KRDD-D.PP-TS.1-1 par. 9.11 OD 711 +/- 1.2 mm - pipe ends OD 711 +/- 1.77 mm - pipe body	DTP 15.3102-09 IS 15-G13/13
	- out-of-roundness	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	3 pipes per shift	acc. to manufacturer's procedure and EN 3183-M:2012, tab. M.3 2015-08-00-KRDD-D.PP-TS.1-1 max 0,5 % D	DTP 15.3102-09 IS 15-G13/13
	- wall thickness	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, tab. M.4 WT: 12,5 mm +/- 0,625 mm	DTP 15.3102-09 IS 15-G13/13
	- length	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	13 m +/- 0,5 m max 5% shorter length 10 - 12,49 m	DTP 15.3104-05 DTP 15.3102-09 IS 15-G13/13
	- straightness	EN 3183-M:2012 TS-TR-2015	every doubt of straightness deviation	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.11.3.4 max. 2,0 mm / m	DTP 15.3102-09 IS 15-G13/13

IZOSTAL S.A.
VICE PRESIDENT
COMMERCIAL DIRECTOR

mgr Michał Pietrek

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CEO

mgr Marek Magurek

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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)


ArcelorMittal

Document number: 153-3/19 rev. 0

TT Technika
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Compiled by J. Pospíšil

EN ISO 3183-M:2012, Grade L415ME PSL2, 711,0x12,5 mm,
2015-08-00-KRDD-D.PP-TS.1-1 rev.A

date: 9.1.2019

Rev. 0						
Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE	
6	- weld beads	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, table M.6 outside weld : max 3,0 mm inside weld : max 3,0 mm least 150 from each pipe -outside bead shall be removed by grinding. max height of teh weld after grinding 0,5 mm	DTP 15.3102-09 IS 15-G13/13	
	- radial offset	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, table M.5,	DTP 15.3102-09 IS 15-G13/13	
	- misalignment of weld seam	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 pipe per shift	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.13.3, max 3,0 mm	DTP 15.3102-09 IS 15-G13/13	
7	REPAIR WELD	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe with defect (only weld)	acc. to manufacturer's procedure and EN 3183-M:2012, annex C.4 After weld repair, the total area of the repair shall be both ultrasonically and radiographically inspected in accordance to Annex E Maximum number of repairs in one section is three (3). A section is intended as 6 m of pipe length. Weld repairs within 200 mm of the pipe ends and repair of the crack are not permitted.	DTP 15.3103-09 IS 15-G13-13	
8	HYDROSTATIC TEST	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	Hydrostatic test pressure p= 12,8 MPa / 10 s.	DTP 15.3105-01 IS 15-G13/13	
9	MECHANICAL TESTS and PRODUCT ANALYSIS Product analysis	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1 EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	- 2 per every heat	acc. to manufacturer's procedure and EN 3183-M:2012, table 18 and M.7 EN ISO 3183-M, table M.1, C, Mn, Si, P, S, V, Nb, Ti, Al celt., N, Cu, Ni, Cr, Mo, C.I.E. max. 0,43 %	IS 15-G13/13 IS 15- 01/14 IS 15-G13/13	

mgr Michal Pietrek

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CHAIRMAN OF THE BOARD

mgr Marek Mazurek

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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)

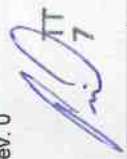

ArcelorMittal

Document number: 153-3/19 rev. 0

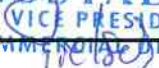
EN ISO 3183-M:2012, Grade L415ME PSL2, 711,0x12,5 mm,
2015-08-00-KRDD-D.PP-TS.1-1 rev.A

date: 9.1.2019

Compiled by J. Pospišil


J. Pospišil - Technika

Rev. 0					
Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE
9	Tensile test - pipe body	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table M.2 Rt0.5 = 415 - 565 MPa, Rm = 520 - 760 MPa, Rt0.5/Rm = max. 0.85 A = min. 18 % transverse direction	IS 15-G13/13
	Impact test - pipe body	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table G.2 KV 40 J min average, 30 J min temperature -29 °C,	IS 15-G13/13
	Tensile test - weld seam	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table M.2 Rm = min. 520 Mpa	IS 15-G13/13
	Bend test of the weld	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 set per 50 pipes	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table 18, table M.8 and M.9 mandrel diameter : 5T	IS 15-G13/13
	Impact test - weld seam	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table G.2 KV 40 J min average, 30 J min temperature -29 °C	IS 15-G13/13
	Impact test - heat affected zone	EN 3183-M:2012	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table G.2 KV 40 J min average, 30 J min temperature -29 °C	IS 15-G13/13
	macrographic test - weld seam	EN 3183-M:2012	1 per shift	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table 18	IS 15-G13/13
	DWTT test	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 set per 50 pipes	EN ISO 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1 par. 2.7.2.3 - item 11, 12 Min 85% at temperature -20°C	IS 15-G13/13

IZOSTAL S.A.
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mgr Michal Pietrek

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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)						ArcelorMittal	
Rev. 0	EN ISO 3183-M:2012, Grade L415ME PSL2, 711,0x12,5 mm, 2015-08-00-KRDD-D.PP-TS.1-1 rev.A			Document number: 153-3/19 rev. 0			
	date: 9.1.2019			Compiled by J. Pospíšil			
	TT - Technika 7						
Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE		
9	Hardness test	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 set per 50 pipes	EN ISO 3183-M:2012 Annex J 2015-08-00-KRDD-D.PP-TS.1-1 par. 2.7.2.3 - item 59 max 270HV for each zone (PM, WELD,HAZ)	IS 15-G13/13		
10	NDT INSPECTION	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012	IS 15-G13/13		
	Ultrasonic inspection	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and ČSN EN ISO 3183 annex M Longitudinal / transverse imperfections in the weld: ultrasonic test ISO10893-1:2011, acceptance level U2H Laminar imperfections at the pipe ends: ultrasonic test acc. EN ISO 3183 E3.2.3 and ISO 10893-8, acceptance limit 6 mm max. circumferentially Laminar imperfections on strip or plate edges/area adjacent to weld seam acc. ISO 10893-9 acceptance level U2 Laminar imperfections in the pipe body: ultrasonic test ISO 10893-9:2011, acceptance level U2 NDT of the weld seam at pipe ends (untested ends)/repaired areas: ultrasonic test ISO 10893-11:2011 on longitudinal and transverse imperfections, acceptance level U2H and radiographic inspection ISO 10893-7:2011, image quality class B	IS 15-G13/13 Procedure NDT P-SN.1-01 Procedure P-US.1-01 Procedure P-US.1-02 Procedure P-RT.1-01		
	Residual magnetism	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012 max 3 mT	IS 15-G13/13		
11	PIPE ENDS	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012	DTP 15.3104-05 IS 15-G13/13		

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 COMMERCIAL DIRECTOR

mgr Michał Pietrek

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 CEO

mgr Marek Mazurek

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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)


ArcelorMittal

Rev. 0

EN ISO 3183-M:2012, Grade L415ME PSL2, 711,0x12,5 mm,
2015-08-00-KRDD-D.PP-TS.1-1 rev.A

Document number: 153-3/19 rev. 0

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COMMERCIAL DIRECTOR
mgr Michał Pietrek

date: 9.1.2019

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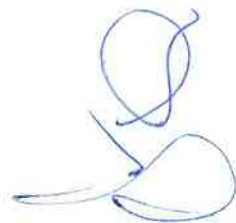

TT - Technika

DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE
- preparation of ends	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	beveled ends acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012 and TS-TR-2015 : bevel 30 ° -0/+5 ° root face 1,6 mm +/- 0,8 mm	DTP 15.3104-05 IS 15-G13/13
squareness of cut	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	2 pipes per shift	acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012 and 2015-08-00-KRDD-D.PP-TS.1-1 max 1,6 mm	DTP 15.3104-05 IS 15-G13/13
- grinding of weld bead	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	Inside : 100 +20/-0 mm Outside : min. 150 mm	IS 15-G13/13
Marking stamping	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	AMTPO inspector mark EN ISO 3183 L415ME PSL2 E 711 x 12,5 SAWH Heat Number Pipe number	IS 15-G04-09

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IZOSTAL S.A.
CHAIRMAN OF THE BOARD
CEO
mgr Marek Mazurek

000187



Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)



Rev. 0

EN ISO 3183-M:2012, Grade L485ME PSL2, 711,0x11,0 mm,
2015-08-00-KRDD-D.PP-TS.1-1 rev. A

Document number: 153-1/19 rev. 0

date: 9.1.2019

Compiled by J. Pospíšil

- Technika

Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE
1	TYPE	SAWH, produce acc. to EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure	DTP 15.3101-09 IS 15-G13/13
	INPUT MATERIAL	release input material: Coil, welding wire, welding flux EN 3183-M:2012	every delivery	acc. to manufacturer's procedure	PP TT-5.06
	MANUFACTURING, FORMING AND WELDING	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure	DTP 15.3101-09 IS 15-G13/13
	CHEMICAL COMPOSITION	EN 3183-M:2012	1 per every heat	EN 3183-M:2012, Table M.1, grade L485ME	IS 15-01/10
	VISUAL INSPECTION	2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 10.2.7	DTP 15.3101-09 IS 15-G13/13
	- surface imperfections	2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.10	DTP 15.3102-09 IS 15-G13/13
	DIMENSIONS INSPECTION	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.11	DTP 15.3102-09 IS 15-G13/13
	- outside diameter	2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and 2015-08-00-KRDD-D.PP-TS.1-1 par. 9.11 OD 711 +/- 1,2 mm - pipe ends OD 711 +/- 1,77 mm - pipe body	DTP 15.3102-09 IS 15-G13/13
	- out-off-roundness	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	3 pipes per shift	acc. to manufacturer's procedure and EN 3183-M:2012, tab. M.3 2015-08-00-KRDD-D.PP-TS.1-1 max 0,5 % D	DTP 15.3102-09 IS 15-G13/13
	- wall thickness	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, tab. M.4 WT: 11,0 mm +/- 1,1/-0,55 mm	DTP 15.3102-09 IS 15-G13/13
	- length	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	13 m +/- 0,5 m max 5% shorter length 10 - 12,49 m	DTP 15.3104-05 DTP 15.3102-09 IS 15-G13/13
	- straightness	EN 3183-M:2012 TS-TR-2015	every doubt of straightness deviation	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.11.3.4 max. 2,0 mm / m	DTP 15.3102-09 IS 15-G13/13

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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)


ArcelorMittal

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Rev. 0		EN ISO 3183-M:2012, Grade L485ME PSL2, 711.0x11.0 mm, 2015-08-00-KRDD-D.PP-TS.1-1 rev. A			Document number: 153-1/19 rev. 0	
Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE	
6	- weld beads	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, table M.6 outside weld : max 3.0 mm inside weld : max 3.0 mm least 150 from each pipe -outside bead shall be removed by grinding. max height of teh weld after grinding 0.5 mm	DTP 15.3102-09 IS 15-G13/13	
	- radial offset	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, table M.5,	DTP 15.3102-09 IS 15-G13/13	
	- misalignment of weld seam	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 pipe per shift	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.13.3. max 3.0 mm	DTP 15.3102-09 IS 15-G13/13	
	REPAIR WELD	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe with defect (only weld)	acc. to manufacturer's procedure and EN 3183-M:2012, annex C.4 After weld repair, the total area of the repair shall be both ultrasonically and radiographically inspected in accordance to Annex E Maximum number of repairs in one section is three (3). A section is intended as 6 m of pipe length. Weld repairs within 200 mm of the pipe ends and repair of the crack are not permitted.	DTP 15.3103-09 IS 15-G13-13	
8	HYDROSTATIC TEST	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	Hydrostatic test pressure p= 13.1 MPa / 10 s.	DTP 15.3105-01 IS 15-G13/13	
9	MECHANICAL TESTS and PRODUCT ANALYSIS	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	-	acc. to manufacturer's procedure and EN 3183-M:2012, table 18 and M.7	IS 15-G13/13	
	Product analysis	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	2 per every heat	EN ISO 3183-M, table M.1, C, Mn, Si, P, S, V, Nb, Ti, Al celtk., N, Cu, Ni, Cr, Mo, C.E. max. 0.43 %	IS 15- 01/14 IS 15-G13/13	

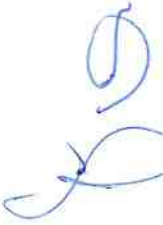
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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)



Rev. 0

EN ISO 3183-M:2012, Grade L485ME PSL2, 711,0x11,0 mm,
2015-08-00-KRDD-D.PP-TS.1-1 rev. A

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Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE
9	Tensile test - pipe body	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table M.2 Rt0.5 = 485 - 605 MPa, Rm = 570 - 760 MPa, Rt0.5/Rm = max. 0.90 A = min. 18 % transverse direction	IS 15-G13/13
	Impact test - pipe body	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table G.2 KV 55 J min average, 41 J min temperature -29 °C,	IS 15-G13/13
	Tensile test - weld seam	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table M.2 Rm = min. 570 Mpa	IS 15-G13/13
	Bend test of the weld	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 set per 50 pipes	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table 18, table M.8 and M.9 mandrel diameter : 6T	IS 15-G13/13
	Impact test - weld seam	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table G.2 KV 55 J min average, 41 J min temperature -29 °C	IS 15-G13/13
	Impact test - heat affected zone	EN 3183-M:2012	1 per 50 pipes with the same heat	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table G.2 KV 55 J min average, 41 J min temperature -29 °C	IS 15-G13/13
	macrographic test - weld seam	EN 3183-M:2012	1 per shift	acc. to manufacturer's procedure and EN ISO 3183-M:2012 table 18	IS 15-G13/13
	DWTT test	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 set per 50 pipes	EN ISO 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1 par. 2.7.2.3 - item 11, 12 Min 85% at temperature -20°C	IS 15-G13/13

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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)


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Rev. 0

EN ISO 3183-M:2012, Grade L485ME PSL2, 711,0x11,0 mm,
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Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE
9	Hardness test	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	1 set per 50 pipes	EN ISO 3183-M:2012 Annex J 2015-08-00-KRDD-D.PP-TS.1-1 par. 2.7.2.3 - item 59 max 300HV for each zone (PM, WELD, HAZ)	IS 15-G13/13
	NDT INSPECTION	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012	IS 15-G13/13
	Ultrasonic inspection	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and ČSN EN ISO 3183 annex M Longitudinal / transverse imperfections in the weld: ultrasonic test ISO 10893-1:2011, acceptance level U2H Laminar imperfections at the pipe ends: ultrasonic test acc. EN ISO 3183 E3.2.3 and ISO 10893-8, acceptance limit 6 mm max. circumferentially Laminar imperfections on strip or plate edges/area adjacent to weld seam acc. ISO 10893-9 acceptance level U2 Laminar imperfections in the pipe body: ultrasonic test ISO 10893-9:2011, acceptance level U2 NDT of the weld seam at pipe ends (untested ends)/repaired areas: ultrasonic test ISO 10893-11:2011 on longitudinal and transverse imperfections, acceptance level U2H and radiographic inspection ISO 10893-7:2011, image quality class B	IS 15-G13/13 Procedure NDT P-SN.1-01 Procedure P-US.1-01 Procedure P-US.1-02 Procedure P-RT.1-01
	Residual magnetism	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012 max 3 mT	IS 15-G13/13
	PIPE ENDS	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012	DTP 15.3104-05 IS 15-G13/13

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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)



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EN ISO 3183-M:2012, Grade L485ME PSL2, 711,0x11,0 mm,
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Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE
	- preparation of ends	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	beveled ends acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012 and TS-TR-2015 : bevel 30 ° -0/+5 ° root face 1,6 mm +/- 0,8 mm	DTP 15.3104-05 IS 15-G13/13
	squareness of cut	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	2 pipes per shift	acc. to manufacturer's procedure and ČSN EN ISO 3183-M:2012 and 2015-08-00-KRDD-D.PP-TS.1-1 max 1,6 mm	DTP 15.3104-05 IS 15-G13/13
	- grinding of weld bead	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	Inside : 100 +20/-0 mm Outside : min. 150 mm	IS 15-G13/13
	Marking stamping	EN 3183-M:2012 2015-08-00-KRDD-D.PP-TS.1-1	every pipe	AMTPO inspector mark EN ISO 3183 L485ME PSL2 E 711 x 11 SAWH Heat Number Pipe number	IS 15-G04-09

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Manufacturing Procedure Specification (MPS) Inspection Test Plan (ITP)


ArcelorMittal

Rev. 0

EN ISO 3183-M:2012, Grade L415ME PSL2, 711,0x11,0 mm,
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Nr	DESCRIPTION	REFERENCE STANDARD	FREQUENCY OF INSPECTION	ACCEPTANCE LIMIT	MANUFACTURE'S PROCEDURE CODE
6	TYPE	SAWH, produce acc. to EN 3183-M:2012	every pipe	acc. to manufacturer's procedure	DTP 15.3101-09 IS 15-G13/13
	INPUT MATERIAL	2015-08-00-KRDD-D.PP-TS.1-1 release input material: Coil, welding wire, welding flux	every delivery	acc. to manufacturer's procedure	PP TT-5.06
	MANUFACTURING, FORMING AND WELDING	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure	DTP 15.3101-09 IS 15-G13/13
	CHEMICAL COMPOSITION	EN 3183-M:2012	1 per every heat	EN 3183-M:2012, Table M.1, grade L415ME/X60ME	IS 15-01/10
	VISUAL INSPECTION	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 10.2.7	DTP 15.3101-09 IS 15-G13/13
	- surface imperfections	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.10	DTP 15.3102-09 IS 15-G13/13
	DIMENSIONS INSPECTION	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.11	DTP 15.3102-09 IS 15-G13/13
	- outside diameter	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure and 2015-08-00-KRDD-D.PP-TS.1-1 par. 9.11 OD 711 +/- 1.2 mm - pipe ends OD 711 +/- 1.77 mm - pipe body	DTP 15.3102-09 IS 15-G13/13
	- out-off-roundness	EN 3183-M:2012	3 pipes per shift	acc. to manufacturer's procedure and EN 3183-M:2012, tab. M.3 2015-08-00-KRDD-D.PP-TS.1-1 max 0,5 % D	DTP 15.3102-09 IS 15-G13/13
	- wall thickness	EN 3183-M:2012	every pipe	acc. to manufacturer's procedure and EN 3183-M:2012, tab. M.4 WT: 11,0 mm +/- 1,1/-0,55 mm	DTP 15.3102-09 IS 15-G13/13
	- length	EN 3183-M:2012	every pipe	13 m +/- 0.5 m max 5% shorter length 10 - 12,49 m	DTP 15.3104-05 DTP 15.3102-09 IS 15-G13/13
	- straightness	EN 3183-M:2012 TS-TR-2015	every doubt of straightness deviation	acc. to manufacturer's procedure and EN 3183-M:2012, par. 9.11.3.4 max. 2,0 mm / m	DTP 15.3102-09 IS 15-G13/13

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